



FRIDAY, NOVEMBER 2.

Southern Railway & Steamship Association.

The ninth annual convention of the Southern Railway & Steamship Association was held in Atlanta, Ga., Oct. 24. There were present the following officers and representatives of the various lines interested:

Hon. J. E. Brown, President; Virgil Powers, General Commissioner; C. A. Sindall, Secretary of the Association. Western & Atlantic, Hon. J. E. Brown, President; R. A. Anderson, General Superintendent; J. M. Brown, General Freight Agent.

W. G. Raoul, President; W. F. Shellman, Traffic Manager; G. A. Whitehead, General Freight Agent Central Railroad, Ocean Steamship Co., and leased lines of Central Railroad. C. Gabbett, General Manager Atlanta & West Point and Western Railroad of Alabama.

J. W. Green, General Manager; E. R. Dorsey, General Freight Agent, Georgia Railroad.

John Scott, President; E. P. Wilson, General Freight Agent, Cincinnati, New Orleans & Texas Pacific.

Hon. R. R. Bridgers, President; T. M. Emerson, General Freight Agent, Wilmington & Weldon and Wilmington, Columbia & Augusta.

A. L. Rives, Vice President; T. M. R. Talcott, General Manager; Sol. Haas, Traffic Manager; G. S. Barnum, Assistant General Freight Agent, Richmond & Danville.

John B. Peck, General Manager; S. B. Pickens, General Freight Agent, South Carolina Railway.

C. S. Gadsden, General Superintendent; S. C. Boynton, General Freight Agent, Charleston & Savannah.

Henry Fink, Vice-President; J. R. Ogden, General Freight and Ticket Agent, East Tennessee, Virginia & Georgia.

M. H. Smith, Vice-President; J. M. Culp, General Freight Agent, Louisville & Nashville.

J. S. Davant, General Freight and Ticket Agent, Port Royal & Augusta.

J. W. Thomas, General Manager; Geo. R. Knox, General Freight and Ticket Agent, Nashville, Chattanooga & St. Louis.

H. S. Morse, General Manager, Brunswick & Western.

A. C. Haskell, President; D. Cardwell, General Freight Agent, Charlotte, Columbia & Augusta.

W. H. Stanford, General Freight Agent, Old Dominion Steamship Co.

T. H. Carter, Arbitrator; T. E. Walker, Auditor; M. S. Freeman, Clearing-House Agent; E. T. Hughes, General Agent, Southern Railway & Steamship Association.

Also a number of officials of lines connecting with roads members of Association, etc.

The Association met at 10 a. m., when General Commissioner Powers presented his annual report. The tables accompanying the report are too large for publication here, and we are compelled to omit them. The rest of the report is as follows:

GENERAL COMMISSIONER'S REPORT.

Herewith I hand you annual report of business for year 1892-93 (Sept. 1, 1892, to Aug. 31, 1893), and other statements. * * *

The information contained in the tables showing merchandise and cotton business is very valuable, showing the value of the competitive business at important points.

It is gratifying to be able to state that all balances, accounts, etc., have been paid in full from the date of the establishment of the General Commissioner's deposit plan, August, 1877, to date of last account rendered, Aug. 31, 1893.

The table on page 1,176 shows, at points where reports were made for the whole or both years, a decrease of 4,996 tons, or 6.4 per cent., in merchandise tonnage, but an increase of \$121,788, or 12.6 per cent., in revenue—showing that the merchandise business of the past year was done on much better rates, and that higher classification prevailed than the year previous.

The table on page 1,194 shows an increase in cotton of 73,441 bales, or 10.4 per cent., and \$104,215, or 10.4 per cent., in revenue. The two tables show a net gain in revenue to the transportation companies of \$236,003, or 9.8 over 1891-92.

Rates have been very well maintained during the past year, but some complaint has been made as to maintenance of cotton rates, particularly as to shipments of through cotton on combination of local rates, and as to repayment to shippers of compress fee by ships at the ports.

A new agreement was entered into on Jan. 17 last, to continue in force until January, 1894, between parties interested. That agreement, I believe, will be improved by a few changes, particularly as some of its provisions are not in harmony with the principal object of the Association. I therefore respectfully suggest the following changes:

That Section 11 be changed so as to have three instead of two arbitrators. (The old system as to arbitrators was better than the new in my opinion.) The appointment of the third man by the Convention would, no doubt, be more satisfactory than if appointed by the two arbitrators, and the three can, in all cases, become better informed as to merit of cases submitted, and arrive at decisions more satisfactory than if made by appointment of the two arbitrators.

I advise that Section 18 be changed, and that cotton and all other business be pooled on the basis of revenue instead of in bales or tonnage, with payment of excess as now in 80 per cent. of the revenue received. It will make but little difference in revenue to the different lines, and balances are more accurately made up. The present methods of assessing balances on excess are very unsatisfactory, and to some extent uncertain as to accuracy in detail. I am not sure that any method of working out the detail is absolutely correct, and believe results of division in revenue will work out in detail much more certainly as to amounts due each, than the present bale or tonnage pool.

The latter part of Section 19, giving to the roads or lines the allotment of business, they to determine the subdivisions, without appeal, leaves the connections of the terminal lines or roads, if they do not receive satisfactory allotments of business, without interest in the maintenance of rates, which is the foundation of our organization. I suggest, therefore, that where satisfactory allotments are not made by initial or terminal lines to these connections that the question of subdivisions be referred to arbitration. The Rule 11 in the old agreement, making all allotments to lines, and not initial roads, was much more satisfactory than the present rule.

I would again urge upon all the importance of pooling all competitive business as the only method of maintaining just and reasonable rates, and, also, again call the attention of members to the importance of taking some action in relation to the compressing of cotton at interior competitive points. A large amount of money is being thrown away by nearly if not all of the lines, by paying the compress and allowing the shippers to get not only a part of the price of the compress fee paid by the road, but receiving from the ship at shipping port the full cost of compressing at the port,

thus receiving a rebate of from 50 to 70 cents on all cotton shipped to foreign ports, if not to Eastern points. If the road or line pays for compressing the cotton at initial points, why should they not receive the value of this work from the ship instead of the shipper? If this is done, they will receive the full rates for the road or line, instead of the established rate less the amount paid for compressing. This is getting to be a serious matter, not only in its loss of revenue to the railroads, etc., but is producing irritations and feelings that may result in greater loss, by demoralization of rates. The compress charge averages at least 50 cents per bale, and not less than three-fourths of all the pooled cotton is compressed; I estimate that the shipper receives back from the ships at the ports not less than one-third of the cost of compressing of all the cotton shipped from pooled points where there are interior presses; or, say there are 700,000 bales shipped, of which 500,000 are compressed, one-third of which pays back to shipper the port fee for compressing. The shipments last year were, from competitive points where cotton is compressed, about 450,000 bales, of which at least 400,000 were compressed, and the shippers received back an average of about 60 cents on about 175,000 bales. Thus the transportation companies are giving to shippers not less than \$105,000 annually, which should go to these companies. If the transportation companies can afford this, then they should give it to the general public by reducing the rates to this extent, and not to a few dealers in the staple. I have elaborated this subject, hoping that the managers will see to it that this large amount so much needed by the transportation companies is not thus given away—producing not only loss, but great dissatisfaction and irritation.

The question of difference of rates between interior points in Georgia and Alabama, Savannah, Charleston, Norfolk, West Point, etc., was submitted to arbitration recently. The arbitrators failing to agree, the question was submitted to the Hon. Charles Francis Adams, Jr., as umpire, whose award is herewith submitted, from which it will be seen that his decision is temporary. As this is a very important question, it should be determined in some way that will give at least moderate satisfaction. I commend it to your careful and prudent consideration.

The Bureau of Claims and Car Mileage having been left under the control of the General Commissioner, I respectfully offer the following suggestions:

The claim business having been left under the control and supervision of the General Commissioner, it becomes my duty to offer certain suggestions and recommendations which I trust will receive your careful consideration. The advantages of prompt settlement and the equitable adjustment of liability as between the roads, will be fully acknowledged by all who deal directly with the public and who undergo the irritations of delays and the clamors of an impatient patronage. The great need is the want of some central power to decide complex and disputed cases, involving the liability of the roads and the justness of the demand; a power whose decisions will be accepted as final. We handle the business of a vast territory, intersected by competing lines, whose tonnage is rapidly increasing and the difficulties of an interchange of business constantly needing explanations, and the adoption of rules that will become so universally recognized as to become law. The readiest and seemingly the most practicable remedy is the establishment of a claim court—a court so constituted that each important line may be represented and its interests conscientiously considered. The question of representation with or without taxation for the support of the department is respectfully referred to your judgment. You would, by the creation and empowering of said court or committee, do much to prevent disagreements as to adjustments between the different roads, the complaints of patrons, and prevent many suits and their attendant costs. This court could hold quarterly sessions and clear the docket of all disputed cases, enact or amend such rules as the necessities of the business would demand or suggest.

Separate or individual action by roads, is fruitful of confusion of rules or claim laws, and gives rise to many different constructions as to what the rules mean. It also creates disagreements and the promulgation of orders that act ultimately as barriers to the settlement of claims and the ready admission of said claims to credit when paid. As you all know, the lines south of Chattanooga have agreed and have maintained the claim department, which has continued to work for the good of all, as far as its means and powers could be exerted. This has been done, notwithstanding the fact that the Western roads have refused to participate in the expenses incurred. I believe that when they consider the work done, and the advantages to be obtained by the adoption of the suggestion recommended, they will again become interested paying members of the claim department. The refusal of some lines to protect what are known as "foreign bills of lading," or to allow credit for claims based upon them, until authority is first obtained from initial roads, is causing much embarrassment. All claims are charged and collected before credits are paid. You can see at once, how soon a large sum can be scattered over the Northwest, awaiting the pleasure of auditing departments, and the loss of papers incident to a system that requires authority from the initial roads, on cash vouchers, before credit is allowed.

The laws in most of the Southern states are peremptory, and the consignee has only to present his just claim and the delivering roads must pay. When said payment is made, upon well authenticated bills of lading, especially in cases of mere overcharge, why should the delivering roads be required to secure authority for the payment of a demand which is so manifest and easily audited? Reference of these bills before payment causes delay and eventuates in loss of business. My purpose is to call your attention to these matters, that you may devise remedies for existing disabilities before they become hurtful and grow into grievances. There is nothing more hurtful to any transportation line than delays in settling claims. If two lines exist between any two points of nearly the same capacity, and one settles these just claims promptly and the other is tardy and unreasonable in its rules and regulations, in such cases the line that settles promptly will very soon get the larger share of the business. I know this from past experience. I call the attention of those interested in the claim department to this, hoping they will take action and establish some satisfactory method of settling claims.

The car mileage was also put in charge of the General Commissioner by the agreement, but at the same time notice was given by the Louisville & Nashville, the Nashville, Chattanooga & St. Louis, and the Cincinnati, New Orleans & Texas roads, that they would withdraw after Feb. 1. Soon thereafter, several other Western roads withdrew, leaving the roads south of Chattanooga to keep it up. They, knowing its importance to the railroads, continued to maintain the organization at largely reduced expense, hoping and believing that the Western roads would see the importance of its existence, and return; but finding that these roads were getting all the information they ever got without any expense to them, and feeling it was too heavy a burden for those least interested to carry, they were, from economic considerations, forced to discontinue the department, which was done on Oct. 1.

It was a great mistake, even in an economic point of view, in the Western lines to have made it necessary to discon-

tinue the organization. The bureau had been thoroughly reorganized, the expense reduced from \$1,500 to about \$900 per month, and forms of reports and accounts so arranged that any company in the organization could have been informed of the location of any and all of their cars within 24 hours after reports were received, and reports from any road should not have been over two days reaching this office, and, in many instances, could have reached it as soon as the principal office of the road sending the report. The system would, before this, have been so perfected as to have saved all expenses of having men traveling all over the country looking up lost cars; besides, I feel sure that the loss to the roads furnishing most of the cars, from the imperfect manner of keeping and want of checks to verify accounts, are losing enough by omitted mileage and overcharges, to quite pay what would have been expected of them toward the expense of keeping it up. I say this from our experience in correcting the car mileage in the first two or three months after these accounts were turned over to this office. I am sure it will be found a necessity to have some combined organization to keep these foreign car mileage accounts, and that it was a mistake in discontinuing this one after expending so much to get it perfected.

In conclusion, I would, in justice to the officers and clerks under my direction, say that they have performed their services faithfully, efficiently and cheerfully during the past year.

EVENING SESSION.

In the evening the Executive Committee, to which had been referred the question of renewing the agreement for another year, made a report in favor of adopting the old agreement. This was finally agreed to, and the present officers of the Association were re-elected.

It was determined to elect three arbitrators instead of one, and the following gentlemen were chosen as arbitrators: T. H. Carter, John Screven and E. K. Sibley. No further business was transacted, and the convention then adjourned.

COMMITTEE MEETINGS.

After the adjournment of the convention, the Executive Committee met and appointed the following Claims Committee to adjudicate all disputed cases: J. M. Culp, General Freight Agent Louisville & Nashville; G. R. Knox, General Freight Agent Nashville, Chattanooga & St. Louis; R. A. Anderson, General Superintendent Western & Atlantic; W. F. Shellman, Traffic Manager Central Railroad; E. R. Dorsey, General Freight Agent Georgia Railroad; E. P. Wilson, General Freight Agent Cincinnati, New Orleans & Texas Pacific; J. L. Taylor, General Freight Agent Savannah, Florida & Western.

The Executive Committee passed a resolution inviting chambers of commerce to appoint two of their members to appear before the Committee to state any causes of grievance or complaint as to rates, etc. A circular setting forth this action of the Committee will be issued at once. On receipt of replies designating parties to serve for the various boards of trade or chambers of commerce a call for the meeting of the Committee will be made. Notice of time and date will be given to the boards of trade desiring to present complaints or to ask readjustment of rates.

The Rate Committee also held a meeting at which a few slight changes in classification were made. It was resolved to make no changes in existing rates, and the Committee adjourned.

Uniformity in Signals.

At the recent meeting of the General Time Convention the following report was read by Mr. James McCrea, Chairman of the Committee on Signals appointed at the previous meeting:

Your Committee, to whom was referred at the last session of your Convention the subject of the adoption of uniform signals, respectfully submits the following:

In considering the question your Committee arrives at the conclusion that there are certain fundamental principles covering the formation and use of signals which should never be lost sight of.

First. Hand and lamp signals should be as near as possible like the motions which a person un instructed would give to convey the same meaning.

Second. All signals should be so plain as to make it impossible to misunderstand or confuse them.

Third. As far as possible, no signal should be made to convey more than one meaning.

Fourth. Signals should be exhibited in the location which will make them the most plainly visible, and for the longest space of time to those for whose information they are displayed.

In ascertaining the relation which the above principles bear to common practice your Committee decided that the time and labor would be required to prepare statistics showing the practice of all the roads in the United States would be so great as to render it impracticable, and, therefore (taking into consideration the train mileage and equipment), 25 roads were selected (except for switch signals), representing nearly 50 per cent. of the total train mileage of the United States, 33 per cent. of the equipment, and 25 per cent. of the track mileage, and in making our recommendations we have endeavored to reconcile them with the practice as shown by these statistics and our own view of what is consistent with the principles we have assumed to be correct.

HAND AND LAMP SIGNALS.

To avoid confusion these signals should be made so that it is possible to give the same motion at night when the lamp is in the hand. There are four communications or signals necessary to be made in that manner, viz.: "Go ahead," "Stop," "Back up," and "Train parted."

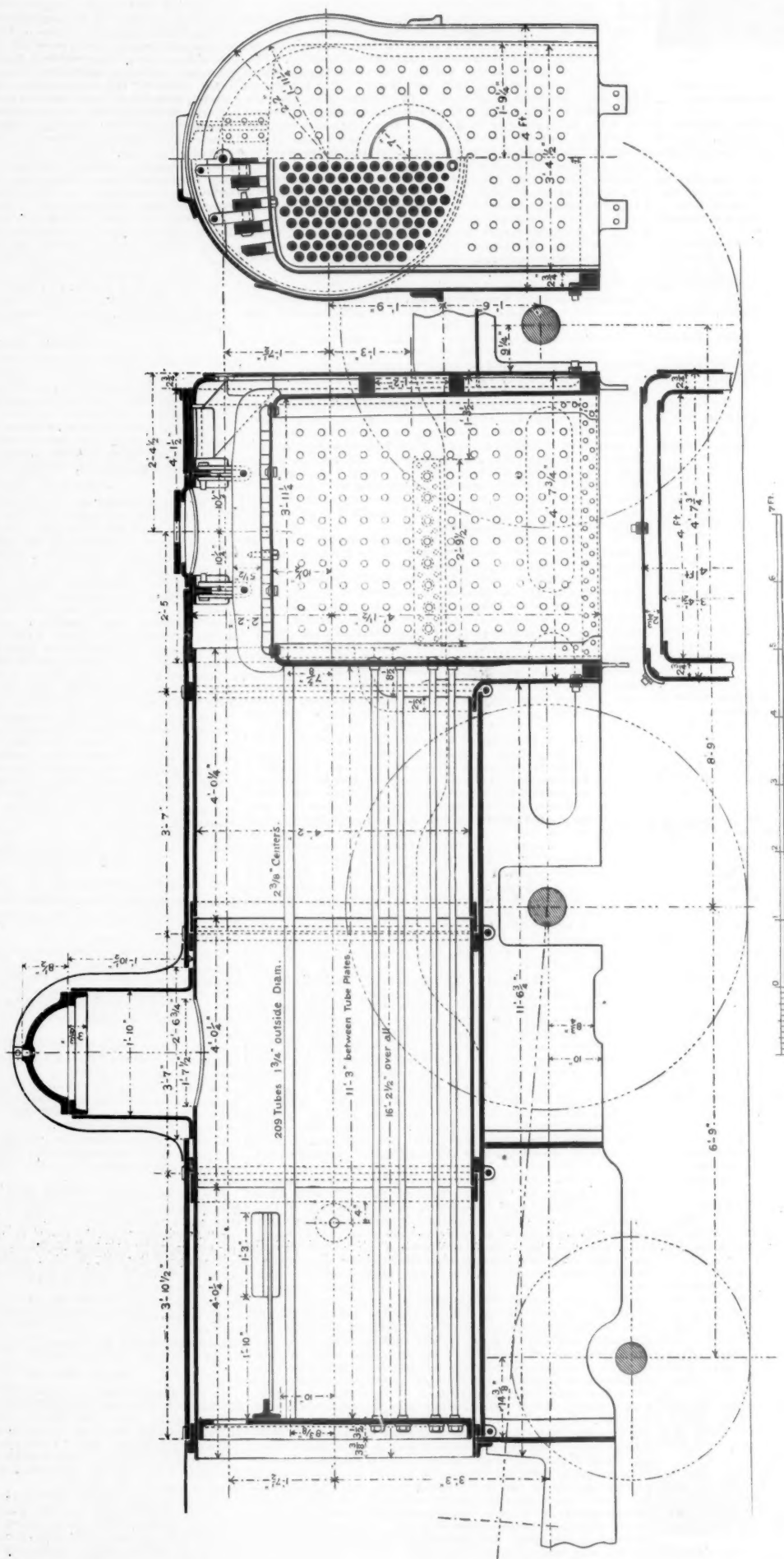
The motions made to convey these ideas should be as near like those made by an un instructed person to produce the same movement as possible.

Persons giving signals are more frequently behind the engine than elsewhere, and the motions should be formed for that position. The examination of the dozen or more persons with no railroad experience, assuming them to be placed behind the engine, resulted in a majority of the cases in motions resembling the following:

"Go ahead"—An up and down motion.
"Stop"—A motion crosswise with the track.
"Back up"—A motion in a circle.

The go-ahead signal was given by raising the hand above the head and moving it energetically forward in the direction it was decided to move the train, until the arm took a horizontal position, when the hand was again raised and the motion repeated. Looked at from in the front the hand has the appearance of moving up and down.

The back-up signal was made by standing facing the engine, extending the arm toward the engineer, and moving it in the arc of a circle over the head, at the same time slowly twisting the body until the hand is pointed almost in the direction the train was to move. The arm was then dropped and returned to the first position. The plane of the circle thus made was at an angle of about 45° to the track, and the hand described the complete circle, every point of which was visible from the engine.



BOILER FOR SIX-WHEEL GOODS LOCOMOTIVE OF THE CALEDONIAN RAILWAY

Designed by Mr. D. Drummond, Locomotive Superintendent.

The signal to stop was made by moving one or both arms violently across the supposed line of movement.

No examination was made for a movement to indicate "train parted," as it is a matter of technique which cannot be understood by the uninitiated.

"Go ahead"—a motion up and down. An examination of statistics has shown that 13 roads out of 25, representing 49 per cent. of the total train mileage considered, or 25 per cent. of the total train mileage of the United States, use this signal, and your Committee recommends it for adoption.

"Stop"—a motion crosswise of the track. Nineteen roads, representing 18 per cent. of the train mileage considered, and 40 per cent. of the total train mileage of the United States, use this signal, and your Committee recommends it for adoption.

"Back up"—a motion in a vertical circle. Fourteen roads,

representing 49 per cent. of the train mileage considered, and nearly 25 per cent. of the total train mileage of the United States, use this signal, and your Committee recommends its adoption.

"Train parted"—a motion in a vertical circle at arm's length across the track, given continuously until answered by the engineer.

This signal is practically in use on 14 railroads, representing 60 per cent. of the train mileage considered, and 34 per cent. of the total train mileage of the United States, although on many of them the words "continuously until answered by the engineer" are not included in the rules.

BELL CORD SIGNALS.

Having considered hand and lamp signals, which are methods of transmitting information from a train crew to

an engineer, we will continue the subject by the consideration of bell cord signals which are for the same object.

In transmitting these signals correctly it is very desirable that they should be made as brief and simple as possible, and thereby reduce the liability for errors to a minimum.

- 1 tap, "Start."—Train standing.
- 2 taps, "Stop."—Train running.
- 2 taps, "Call in flagman."—Train standing.
- 3 taps, "Stop at next station."—Train running.
- 3 taps, "Back up."—Train standing.
- 4 taps, "Reduce speed."—Train running.

The above signals are recommended in accordance with common practice, as shown by statistics, except the signal of "stop immediately." Twelve roads, representing 54 per cent. of the train mileage considered, and nearly 26 per cent. of the total train mileage of the United States, use one tap

of the gong when running instead of two as recommended by your Committee. Your Committee has decided to deviate from the practice indicated, for the reason that this signal is the result of train fracture, and if obeyed by the engineer would probably result in a collision with the detached portion.

WHISTLE SIGNALS.

In considering these signals your Committee has been enabled to use much more extensive statistics than in the other class of signals, by reason of the very full table published with the September edition of the *Official Railway Guide* for the year 1881.

The Committee has deviated from the custom almost generally in use (two short blasts), believing that two long blasts is better for a signal to start, and that two short blasts should be used by the engineer to answer conductor's, flagman's, and others' signals.

The Committee also deviates from the general custom in recommending four long blasts of the whistle to call in the flagman.

According to the statistics 46 roads, representing 51 per cent. of the train mileage, considered, and 26 per cent. of the total mileage of the United States, use these short blasts.

We not only think that four long blasts answer the purpose better, but that it is the common practice, notwithstanding the general rules on the subject to the contrary. Besides this, twelve roads, representing 29 per cent. of the train mileage considered, and 21 per cent. of the total mileage of the United States, use the four long blasts.

On many roads it may not be deemed advisable to adopt any signal to send a flagman out, but, when thought necessary, the Committee recommends the use of five short blasts when, from some sudden emergency, the engineer considers it necessary to notify the flagman that the rear of the train must immediately be protected.

STATIONARY FIXED SIGNALS.

The efforts of the Committee have been directed to make a signal of danger only, and to be used for no other purpose whatever than to bring trains to a full stop.

All signals of color, shape, or position, not held in the hand, but placed stationary, and by the side of the track, or affixed on a moving train, are included under this heading.

The principal use of such signals is to indicate either Danger! Stop! (red); Caution! Proceed with care! (green); Safety! Track clear! (white), or, if scheduled to do so, Stop for traffic! (white and green).

The fixed signals on trains have other meanings and will be considered hereafter.

Each of the four first mentioned should be indicated by a signal of shape or color entirely distinct from all the others and as colors are not readily distinguishable at a distance they should always, when practicable, be reinforced by shape or position.

SHAPES OF SIGNALS.

As to shapes: A man standing by a track, desiring to stop a train, would naturally extend his arm across the track. The outlines would then be a perpendicular object with a horizontal arm protruding at right angles near its top. If he desired to give no signal, he would drop his hands and his outline would be perpendicular.

The signal of danger and safety should conform to these outlines as near as possible, and be combined with red and white at night.

The signal that would naturally suggest itself as one caution would be a compromise between danger and safety, or a perpendicular object with an arm extending out and down at an angle of 45°, and combined with green at night.

In conformity with the fourth principle mentioned in the first part of this report, all signals should be placed on the engineer's side of the track, as he approaches them, unless the land contours make them more easily seen by the engineer if placed on the other side.

SWITCH TARGETS.

Switch targets should be placed on the engineer's side as he runs toward the point of the switch, as there is more danger when running in that direction than when through the switch.

In case separate signals for trains running in each direction are placed on the same standard, the arm on the right side as the signal is approached should ordinarily govern the movement.

Signals for trains in one direction only ordinarily project from the right hand side of the upright as you stand facing it in the direction of the target.

DANGER SIGNALS FOR REAR PROTECTION

should be displayed in an elevated position to the rear only, and never shown when the target is not on the main track.

The fixed signals on trains are used to indicate:

"Train following with the same rights as the train carrying the signals."

"Train following, which is irregular or extra."

"Train carrying the signals, itself irregular," rear of the train, and for rear protection.

We would recommend a green signal carried on the front of the engine to indicate a "train following with the same rights as the train carrying the signals."

A combined green and white signal carried on the front of an engine to indicate a "train following which is irregular."

A white signal carried on the front of an engine to indicate that the "train carrying the signal is itself irregular."

The rear of every train (passenger or freight) should be plainly marked to enable those interested to know that all of the train has passed.

We recommend that green signals be used for this purpose, and they should be combined with red signals, so that one lamp can serve both purposes.

TORPEDO SIGNALS.

(1) "Danger!" "Stop!"
(2) "Caution!" "Run carefully!"

The signal for danger should consist of fewer detonations than the one for caution, so that if one cap fails to explode in a "caution" battery, the signal becomes one of danger.

CONCERNING THE USE OF SIGNALS.

We recommend that a danger signal be used to indicate train orders.

Trains on sidings should clear and remove their signals of danger and display those of caution, otherwise trains passing on the main track will be stopped.

The rear of a train is the part that, when the train is proceeding in its authorized direction, will pass over a given point last, and markers should be displayed at that point, and no train should be reported or considered by until the markers are seen.

JAMES MCCREA,
A. A. TALMAGE,
G. W. PARKER,
E. B. THOMAS, } Committee.

The Convention, after hearing the report, adopted the following resolution:
"Resolved, That the report of the Committee appointed at the last meeting of this Convention, which has been consid-

ered the subject of signals, be accepted, and that the thanks of the Convention be extended to the Committee for their efforts; that the accompanying documents be placed in the hands of the secretary with directions to have same printed and illustrated in detail, and to furnish a copy to all roads in the country with the request that they will signify their assent or objection, and that the secretary report the result at the next meeting for further consideration."

Improvements in Locomotive Boiler Construction.

[Report presented to the Master Mechanics' Association at its Sixteenth Annual Convention, in Chicago, by the Committee on that subject, consisting of Messrs. Jacob Johann, C. R. Peddle and James Eckford.]

(CONTINUED FROM PAGE 702.)

PLATE XIII is a boiler built by D. Drummond, Locomotive Superintendent of the Caledonian Railway of Scotland for use on six-wheel goods engines.

This boiler is 50 in. in diameter, with 209 flues 1½ in. in diameter and 11 ft. 5 in. long. Fire-box is 48 in. long and 40½ in. wide, and there are 8 long rod stays between the front and back flue sheets.

The circumferential seams of this boiler are butt jointed and welded on the outside only, the longitudinal seams being lap jointed and double riveted without welds.

PLATE XIV is another and larger boiler for the same class of engine, also built by Mr. Drummond, of the Caledonian Railway.

This boiler is 52 in. in diameter, with 228 flues, 1½ in. outside diameter and 10 ft. 9 in. long. The fire-box is 68 in. long and 40½ in. wide, and there are also eight long rod stays between the front and back flue sheets.

This boiler, however, differs from the preceding one in having the longitudinal seams butt jointed and welded inside and out, and the circumferential seams lap jointed and single riveted.

The chief peculiarity in this boiler is in the manner of staying the crown sheet, which will be more readily understood by an examination of the plate.

PLATE XV is a boiler built by T. W. Worsdell of the Great Eastern Railway (England), for his express passenger locomotives.

This boiler is 50 in. in diameter, with 201 flues, 1½ in. in diameter and 11 ft. 11 in. long.

Fire-box is 65 in. long and 40½ in. wide.

The circumferential and longitudinal seams are both butt jointed, the circumferential seams being welded on the outside and the longitudinal seams both inside and out.

Mr. Worsdell says: "In response to your inquiry of the 17th ult., I have pleasure in sending you a tracing giving sectional views of the boilers of our new coupled express locomotives. We have just completed 10 of these engines, and are putting in hand 10 more, all of which will be built by ourselves at three works."

"The whole of the shell of the boiler is of Bessemer steel, the fire-box, as shown, of copper, and the tubes of brass. It has been the practice on this railway to stay the top of the fire-box with the direct bolt stays, with heads on the fire-box crown plate screwed through both plates and riveted over on the outside shell; but as these stays have to be placed from 4 to 5 in. apart it was impossible for us to get a man-hole over the centre of the fire-box, which I consider very important for examination."

"I have therefore adopted the old-fashioned system of girder stays, but have simplified them by having each one cast in steel, with all the attachments. They will be held to the fire-box by 1-in. screw bolts screwed from underneath."

"There is nothing else about these boilers that is different from the usual type. They have ample steaming power for the engines, which have 18 in. cylinders and 24 in. stroke and coupled wheels of 7 ft. in diameter."

"The fire-bars are of cast iron in two sections, with air spaces of only ½ in. between; the reason for this is that our coal is very soft and is apt to powder down between the bars if made any wider. We use a brick arch in the fire-box with a deflecting plate in the fire door, and find this about as good as any practice I have met with for the prevention of smoke. Of course the deflector plate is removable, and as the nose of it burns away very rapidly is easily replaced."

PLATE XVI is a boiler built by W. Stroudley, of the London, Brighton & South Coast Railway.

This boiler is 52 in. in diameter at smallest ring, and has 331 1½-in. flues, 10 ft. 8½ in. long. Fire-box is 72 in. long by 41 in. wide and has a fire-brick arch. Longitudinal seams are butt jointed with welt seams inside and out. Circumferential seams lap jointed and single riveted.

Mr. Stroudley says: "The drawing shows so clearly the general arrangement, that I do not think I can say much except to mention that the engine for which this boiler is intended has cylinders 18½ in. in diameter and 26-in. stroke. Driving wheels are 6 ft. 6 in. in diameter, and two axles coupled."

"In the construction of this boiler the best Yorkshire iron plates are used, which are flanged by hydraulic pressure, the ordinary plates being planed on the edges and afterward bent to the required form whilst in a heated state, viz.: at a temperature of about 400°. These are afterward drawn together by very powerful hoops with 1½-in. bolts, and when fixed in position absolutely true, are drilled through butt straps and plates, the holes being countersunk with a curved drill to avoid the sharp angles."

"The plates are afterward taken asunder, thoroughly cleaned, the burrs taken off and again put together with a great many bolts and then riveted by hand, care being taken that the head of the rivet is kept much hotter than the point, so that in driving home the point the hole is thoroughly filled up, the harder metal of the point staying up the softer portion of the body of the rivet."

"The tubes are sometimes of steel, and are bent up in the centre to prevent the end pressure forcing the tubes through the plate. They are bent upward about 1 in. I have similar boilers to this, but somewhat smaller, that have been working for ten or eleven years, and are now, so far as the outer shell is concerned, in as good condition as when new."

"The tubes being of small diameter, and the heating surface liberal, the cinders are not carried through, and consequently the wear on the tubes is very small."

"The mode of staying the crown of fire-box has been reverted to. After some experience with the direct stays, I have found that boilers made with the form of roof-stays shown remain in good order, running 300,000 miles and upward; whereas the fire-boxes which are stayed with direct stays have given a good deal of trouble, owing probably to there being no means for vertical expansion. The longitudinal expansion for the fire-box is provided for by making large curves in the corners, the stays being removed from the corners as far as possible, thus allowing a large surface and great flexibility. The vertical expansion is provided for in the oval holes of the hangers, which allow the fire-box to rise while the steam is being got up. I think you may consider the inclosed tracing as being a fair sample of our best work."

CONCLUSION.

In presenting this report to the Association your Commit-

tee do not wish it to be understood as being in any way an exhaustive treatise.

It is simply intended, as we have previously remarked, to lay before you all the data on the subject that we have been able to obtain, hoping thereby to provoke a thorough discussion that will elicit points of general interest for a more extended investigation during the coming year.

In conclusion, the Committee wish to publicly express their thanks to all those gentlemen who have furnished it with material for our report.

The New York Railroad Commission on the Fort Plain Collision.

The following is the report of the New York Railroad Commission on the collision which occurred on the New York, West Shore & Buffalo road between Fort Plain and St. Johnsville on Oct. 1, the day on which the road was opened to Syracuse:

In the matter of a train collision on Oct. 1, 1883, on the New York, West Shore & Buffalo Railroad:

From the evidence taken before the coroner's jury, and from its own further investigation, the Board finds the facts relative to the above collision to be as follows:

The Mohawk Division of the road lying between Syracuse and Coeymans Junction was open for passenger traffic as a single track road on Oct. 1, 1883.

The second track was in various stages of completion and unfit for use.

No. 72, the first train east, and No. 61, the first train west, were scheduled to meet and pass at Fort Plain, 12:01 m.

Train 61 reached Fort Plain on time. It waited there until 12:30 p. m., when the operator delivered to the conductor and engineer telegraphic orders from the dispatcher at Utica to "meet 72 at St. Johnsville." The conductor and engineer answered as to their understanding of the order, and, upon receiving the approval of the same as correct, started with No. 61 for St. Johnsville at about 12:30.

No. 72, the east-bound train, left Little Falls at 12:07, about 49 minutes late. The engineer, Michael Lyons, was ordered by the conductor at Indian Castle to stop at Mindenville and St. Johnsville for the accommodation of passengers.

These were flag stations, at which stops were not made by the time-table but only under orders from the conductor to let passengers off, or upon a red flag being shown at the station as an indication that there were at the station passengers for the train.

The telegraph offices were in operation at Indian Castle and at St. Johnsville. The stops were made; at neither station were any telegraphic orders delivered to No. 72 to wait at St. Johnsville for the arrival there of 61.

Under his orders from the conductor, and because of a red flag displayed by the station agent at St. Johnsville indicating that passengers for the train were there, the engineer stopped about a minute at St. Johnsville station. In pursuance of a signal from the conductor, the engineer then started about 12:30, and after running 2½ miles met 61 coming west of a curve. A terrible collision ensued, in which Michael Lyons lost his life at his post. James W. Whitlock, a passenger, was killed, and several were injured more or less seriously.

The attempts to hold No. 72 for 61 at St. Johnsville were these:

At 11:14 a dispatch was sent to St. Johnsville to hold 72 at that place until the arrival of 61 from Fort Plain. This was apparently addressed to or understood as being required to be delivered to the agent at St. Johnsville. The operator replied that the agent was not there, obviously referring to the fact that the agent was at the station, 900 feet east of the operator's telegraph office. The dispatcher at Utica then directed the operator at St. Johnsville to flag 72 himself. Upon being further informed at 12:15 that this understanding of the order was correct, the operator at St. Johnsville then took his red flag, and without further effort to communicate the order to the agent, during the 15 minutes that ensued before the arrival and departure of 72, proceeded with his flag and displayed it on and near the track until 72 passed him in front of his office. After the train passed him, the operator started after the train for the station. Before he reached there the train started on.

After delivery of the order to the operator at St. Johnsville to flag 72, and before ordering 61 out of Fort Plain, the dispatcher at Utica tried to reach the conductor and engineer of 72 at Indian Castle. He received a reply that the train had passed that station on its way east. Relying upon the flagging of the train at St. Johnsville, he then ordered 61 to leave Fort Plain as above stated.

The engineer of 72 saw the red flag in the hands of the operator, and also the red flag displayed at the station by the agent for passengers at St. Johnsville. From his comments to his fireman the engineer obviously understood the flags to indicate "stop for passengers." Whether he had a right to so understand is another question discussed further on.

The conductor of No. 72 was gathering up tickets and saw no flag, and after disposing of his passengers at St. Johnsville ordered the train to proceed. The agent at St. Johnsville knew of no order for 72 and said nothing to either the conductor or engineer about the danger flag in the hands of the operator. The dispatcher at Utica acted under the immediate orders of F. E. Merrill, the Division Superintendent, who does not deny the responsibility of having authorized all of the orders given in the matter.

All of these employes were acting under certain rules, and the blame to be attached to them respectively can only be ascertained from a careful examination of the rules.

Those applicable were as follows:

Upon the back of the time-table were these rules:

"1. In all cases of doubt take the side of safety."

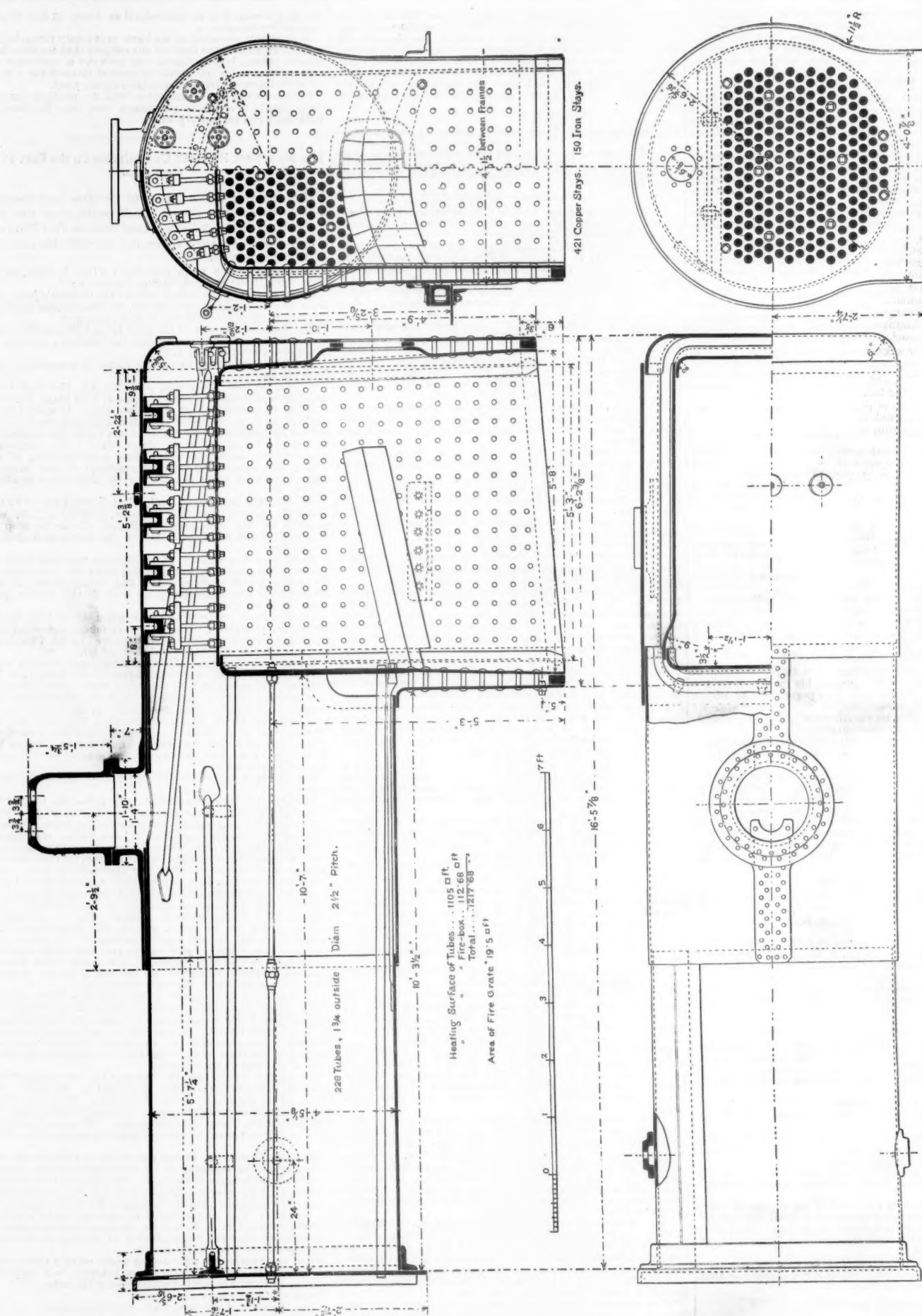
"13. Red is the signal of danger."

"41. When a red flag is shown a train must come to a dead stop to receive information, and can then only proceed under a flag of its own, or until properly notified that the way is clear."

"55. Irregular or wild-cat trains will only be moved by special order of the division superintendent or his authorized dispatcher, and regular trains may be moved contrary to schedule time by the same authority. All orders will be given in writing and addressed to the conductor and engineer of the train so moved or held, and if sent by telegraph the conductor and engineer to whom it is addressed must both sign a receipt and telegraph their understanding. They must not move, however, until the dispatcher telegraphs back that their understanding is correct."

"56. In no case must a train be considered to have received orders, nor must any movement of trains be issued thereon unless the above conditions have been complied with, except in cases of great emergency. When such do arise, the train dispatcher is authorized, in case the conductor and engineer cannot be reached by telegraph, to telegraph to the station agent to stop the train."

"The agent will then send out danger signals 500 ft. toward the expected train."



BOILER FOR EIGHT-WHEEL GOODS LOCOMOTIVE OF THE CALEDONIAN RAILWAY.

Plate XIV.

Designed by Mr. D. Drummond, Locomotive Superintendent.

"The dispatcher will not issue orders based on the train being stopped, until he receives word from the agent that the signals have been set.

"83. While the conductors are responsible for the movements of trains, the engineers are not required to comply with any orders from the conductors which conflict with these regulations or which would place their trains in danger."

On the front of the time-table the following appears:

"10. In addition to the rules on the back of the time-tables, conductors, engineers and all others must be governed by the special rules for the movement of trains issued July 20, 1883."

These rules are headed as follows: "Special rules for the movement of trains to be strictly observed by all train dispatchers, conductors and engineers, agents and operators."

"4. All orders for the movement of trains will be given in writing and addressed to the conductor or engineer of the train so moved or held. When sent by telegraph the operator receiving the order will read it aloud to the conductor and engineer, and they will immediately write on the order

book their understanding of the order and sign it. The operator will then return their understanding precisely as written, to the dispatcher.

"They must not move, however, until the dispatcher has answered that their understanding is correct. The operator will indorse the dispatcher 'correct,' and deliver an exact copy to the conductor and engineer to whom it is addressed

"10. At stations where telegraph orders are awaiting expected trains *operators* will display at the station a red flag by day, and a red light by night, each station adhering strictly to the locality fixed upon as best for the purpose. Such places when once selected (which must be conspicuous) must not be changed except for good, and sufficient reasons

"11. When an operator or agent, or any other employé receives an order to hold a train, such order must be carried out strictly.

"12. When an operator receives an order to flag and hold a train, he must first put out his red signal, and then repeat his order that such train is held and receives the dispatcher's 'correct.'

"The red signals must not be relied upon exclusively to

hold a train, operators are expected to watch closely for the train, using all necessary means to stop it, etc, etc.

"17. No trains must pass a station where red signals are displayed without an order from the train dispatcher to do so, or without a written notice from the operator that the signals are not for that train, and for this purpose the following form will be used :

.....Station.....18.

Train.....
The order of which the red signal is now displayed at this station are not for your train. They are for train.....
Time.....Operator.

"18. Conductors and engineers and all other trainmen in passing a station must especially observe whether signals are displayed for train orders. They must not pass a telegraph station until they are entirely certain that such signals are not displayed.

"22. The above rules are not intended to interfere with any general rule, but are special rules for the guidance of

employees to ensure the safe and prompt movement of trains at all times."

One other rule to be noted in force, but nowhere printed, is that at flag stations a red flag also means "stop for passengers."

The difficulty in fixing the responsibility for this accident is to some extent with the rules themselves. As will be seen by No. 22, employees must observe both the general and special rules. There is a conflict among these rules for which the management, back of all those immediately concerned in the occurrence, is responsible.

By a conflict is meant that the rules, all considered, furnish an opportunity to employees to draw opposing and conflicting conclusions.

Thus, a red flag meaning "danger and stop for orders," and meaning "stop for passengers," presents an opportunity for just such a mistake as Lyons made.

The road says "an engineer has no right to make such a mistake." Red all over our rules is stamped as "danger," "stop and get orders," etc. See rules 1, 13, 41, special rules 10, 12, 17.

This is true, but the fault is in permitting red (except at least in a certain known and fixed position) to mean anything but danger.

To permit a danger signal to mean something else is to give men of ordinary intelligence and memory an opportunity to adopt a wrong construction upon well-managed single track roads. Where red is used with this double meaning, precautions to prevent such a mistake are in force. In a certain fixed position "red" means "stop for passengers"; in every other position it means "danger," "stop for orders." Another safeguard often used is, "that in all cases where a train is to be stopped at a station on signals, the order must be addressed to and answered by both the station agent and the operator where these positions are filled by two persons." See rule 94 of the New York, Pennsylvania & Ohio Railroad.

See also rule 92 of the same road and rules 149 and 151 of New York, Lake Erie & Western, by which it is forbidden to stop a train by signal for the purpose of receiving a special order to meet and pass any other train, unless it has been ascertained that a misunderstanding exists, or that danger is apprehended.

These precautions had not been taken on the West Shore at the time of the accident. Upon some of the best roads red is never used for anything but danger, it therefore can never be mistaken. The signal to "stop for passengers" is given by a combination flag, such as white and green, or by a flag and light of some other color than red.

The Board regards this latter course as the safer. General rules 41 and special rules, 10, 12 and 17, would, at first sight, seem to convict Lyons of incompetency or of recklessness. By them he had no right to pass "red" on his own construction of its meaning. His duty was to ascertain from the operator what he meant by it. On the other hand, his experience and competency as an engineer prior to the accident are unquestioned, and his comments and conduct at the time show a clear misunderstanding of the meaning of the flags.

To some extent, the double use of red above referred to, obviously caused his misapprehension. Then again under the clear terms of general rule 56 and under special rule 4, he was liable to overlook the other rules and was left to assume that his right of way would not be interfered with without his receipt of a telegraphic order, except in a case of great emergency.

That emergency under rule 56 would be told to Lyons in the first place by the station agent's red flag 500 ft. west of the station, and secondly by the station agent himself on stopping. As the station agent knew nothing of the orders and set no such flag, and had nothing to say to Lyons or the conductor at the stations, Lyons went on and died doing his duty as he undoubtedly understood it.

He forgot or overlooked certain other rules which impliedly but not expressly modified rule 56, and gave to the telegraph operator the right to stop him for orders with a red flag in a case of great emergency. The unfinished condition of the facilities at St. Johnsville further contributed to the accident.

The company was at fault in having the operator and agent 900 ft. apart. The agent's red flag meant one thing, while the operator's meant another. No matter how much it is reiterated that an engineer must stop at a red flag, one is still impressed with the idea that an engineer, on coming into the station, would naturally, especially in view of rule 56, expect to find at the station, and from the station agent, all the information which either flag was designed to give.

The Board does not say that Lyons was entirely justified in his expectation, or that he discharged his full duty in simply regarding the flag at the station, but it does mean to say that for such a mistake and for such a resulting accident the management above the engineer is largely responsible.

Any conflict in rules and in the use of danger signals which leaves the engineer having the right of way an opportunity to make such a mistake is a grievous defect, and is reprehensible, and in case of accidents resulting therefrom it is unfair to place the entire blame upon the engineer.

It is charged that the operator at St. Johnsville was negligent in not going to the station and notifying the station agent in the 15 minutes of time that elapsed between his receipt of the order to stop the train and its arrival. Under special rule 12 it would clearly have been his duty to endeavor to send the order to the station agent. The Board does not consider that it would have been proper for him to have left his instrument, particularly in view of the fact that upon his receipt of the message he had answered that he could not reach the agent and had been directed to do the flagging himself.

The office and station were too far apart for safely using St. Johnsville as a meeting point of the trains instead of Fort Plain.

To say that this ought to have been obvious to the Division Superintendent is perhaps going too far in the direction of assuming after an accident happens, that foresight should have been exactly equal to hindsight.

In view of his special orders to do the flagging himself, the Board thinks that the operator at St. Johnsville did his duty.

The extent of the responsibility of the Division Superintendent, F. E. Merrill, is a serious question.

Under general rule 56 above he clearly had no right or authority to change the meeting point of the train otherwise than by an order to the conductor and engineer of No. 72, except in case of great emergency. He claimed that the great emergency existed in the necessity of saving 10 minutes of time for No. 61. To the lay mind it seems ridiculous to say that such a circumstance as the saving of so little time in the trip of a train constituted a great emergency which authorized the Division Superintendent to rely upon flagging alone. It is but fair, however, in judging of the Superintendent, to look at the question as he does, from a railroad standpoint. Inquiries among railroad men develop upon this question a conflict of opinion.

Some do not regard the saving of time involved as a sufficient emergency to authorize a reliance upon flagging in-

stead of a stop order delivered to the conductor and engineer of the train having the right of way.

On the other hand, equally good authorities, including some thoroughly competent and experienced men in single track management, insist that Merrill was justified in his conduct by the circumstances. As one superintendent expresses it, "a red flag is just as holding as an open draw-bridge."

This conflict of opinion makes it very difficult to convict the Superintendent of negligence or incompetency. It does, however, give the Board the opportunity of saying that, in its opinion, railroads that regard the mere saving of time as a sufficient emergency to justify reluctance upon flagging alone, encourage a dangerous practice, which ought not to be tolerated.

Ceding that under rule 56, the emergency existed which justified flagging No. 72, still it will be seen that the Superintendent expressly directed a departure by the St. Johnsville operator from the method of flagging by the station agent, therein provided in cases of emergency. This was an important change, in view of the fact that the observance of the rule would clearly have obviated the accident. If the rule stood alone the Superintendent would clearly be culpable for assuming authority not given. If, however, special rules Nos. 10, 12 and 17 be read, it will be seen that not only are flag orders authorized in all cases apparently, but they are to be given through the operator and not the station agent. These latter rules seem to be given rather a prominence over the general rules, and for acting in accordance with them, contrary to a general rule, a superintendent can be justly blamed for nothing beyond perhaps an error of judgment.

For any conflict or failure of rules governing his conduct, the responsibility lies not with him, but above him.

Merrill was guilty of no negligence or violation of rules, if they all be considered together; but, in the opinion of the Board, he displayed a lack of judgment.

He ought not to have undertaken to change the meeting point of the trains under the circumstances surrounding him.

It was the opening day of the road; these were the first trains; the force under Merrill was new to this branch of the business; his time was limited; the excitement about the trains along the road and at the stations all tended to increase the danger of an operation always involving some hazard, and requiring accurate and precise understanding and conduct on the part of all employees concerned in its accomplishment.

The Board does not deem it necessary to criticize the West Shore management further than to place upon it its share of the responsibility for this accident, as hereinbefore stated. This is due to the reputation of the employees involved.

The road is being constructed in accordance with the highest standard known to railroad experience. Its work thus far in every department of construction and equipment promises to give to the public the maximum of safety, comfort, convenience and accommodation.

It undertook to run passenger trains too soon, and in this accident met a misfortune which the community regrets, and does not condemn as severely as would be the case with an older road. Some running on new roads seems to be necessary, in order to ascertain the precise condition and requirements of safety.

The Board, in conclusion, recommends to railroads the consideration of the following:

1. That some other signal than a danger flag be used at flag stations to indicate "passengers."
2. That railroads revise their rules with the facts of this accident before them.
3. That division superintendents and dispatchers be only permitted to move regular trains contrary to schedule time, and rules by orders in writing or by telegraph be delivered to the engineer or conductor of the train so moved or held as provided in the foregoing special rule 4, except in case of great emergency, and that saving of time must never be regarded as such an emergency.

By order of the Board,

WILLIAM C. HUDSON, Secretary.

The Late William Raymond Morley.

[From the July Transactions of the American Society of Civil Engineers.]

William Raymond Morley was born at Feeding Hills, Mass., Sept. 15, 1846. Left an orphan at a very early age, he removed to Iowa, where he passed his boyhood in the family of an uncle residing in Fayette County, receiving an ordinary common school education. In March, 1864, he enlisted in the Ninth Regiment of Iowa Volunteers and served in the Union army until the close of the war. He was in Sherman's army during the Atlanta campaign and the march to the sea, and participated in all its most desperate battles. Thus in the beginning of his career is the first illustration of that character of life, traceable to the end, fuller than many others, for in his short army career he experienced more, traveled over vaster fields, jeopardized his life oftener than many who enlisted in the beginning. In 1866 he entered the Iowa State University, where he remained less than two years, devoting himself chiefly to scientific studies, for which he displayed great aptitude. His fondness for mathematics and engineering led him to adopt the profession of civil engineering, and in the spring of 1868 he engaged in railway work upon the Iowa Northern Central Railroad. Being naturally of a restless and ambitious disposition, and believing he could find in the Far West a larger field of activity, he went to Denver in 1869 and opened an office as civil engineer. Not finding business to his taste, he sought employment on the Kansas Pacific Railway, which was then in process of construction toward Denver. There were no positions vacant for engineers at the time, so he entered one of the parties as chainman, and such was the activity, knowledge and capacity he displayed that in six weeks he saw much hard service. The Indians were hostile, and made frequent attacks upon the construction parties, and throughout the difficult and dangerous times that ensued Mr. Morley made for himself a reputation for pluck, energy and decision of character, as well as professional ability, which clung to him ever afterward. He thus became early known among railroad men in the Rocky Mountains region as one who could at all times be depended upon to accomplish a desired result without regard to obstacles, if in human power to do it. Upon the recommendation of Gen. Wm. J. Palmer, who had formed a high opinion of his character and ability while on the Kansas Pacific, he was appointed Chief Engineer of the Maxwell Land Grant & Railway Co. in 1870, and during that year he made a number of important railroad surveys in Colorado and New Mexico. Among others, he located a line over the Raton Pass, which was adopted almost without change eight years afterward by the Atchison, Topeka & Santa Fe Co. He also located what he always considered a far better line into New Mexico by way of Emory's Pass on the Dry Cimarron for the Arkansas Valley & Cimarron Railway, an enterprise which failed by reason of the panic of 1873. He went to Europe in 1874 in the hope of reviving the interest of Dutch

capitalists in this enterprise, but confidence in American railway schemes had received too severe a shock, and it was impossible to induce them to go on with the work. Subsequent events have verified with singular accuracy the estimates which Mr. Morley made of the traffic and profits of such a road, and have proven that it would have been one of the best paying pieces of railroad in the Rocky Mountains. In 1876, as Locating Engineer on the Denver & Rio Grande Railway, he located the line of that road over the Veta Pass in Colorado. During the years of inaction in railroad work which followed 1873, Mr. Morley occupied much of his time in becoming thoroughly familiar with the whole southwestern country as a field for railroads, and acquired a knowledge of its topography and resources, so extensive and thorough, and a fund of information so valuable that when the Atchison, Topeka & Santa Fe Company began the great system of southwestern extensions in 1878 his services were at once sought and obtained, and from that time he was identified with all the important works of that company and its Mexican connections. At this time competitive construction began between the Santa Fe Company and the Denver & Rio Grande, in which the prior occupation and possession of controlling points in a region of cañons and mountain passes became a very important matter, and in this sort of work Mr. Morley's peculiar qualities, local knowledge and experience in mountain work brought him at once to the front. By a night march he seized the Raton Pass while the Denver & Rio Grande engineer parties were en route to occupy it, and the Santa Fe Company was locating it under the personal direction of Chief Engineer A. A. Robinson. Directly after occupying the Raton Pass the Santa Fe Company conceived the idea of building from Cañon City westward to Leadville, thus occupying the Grand Cañon of the Arkansas, which for five miles was barely practicable for one railroad, and had no room for two. As the Denver & Rio Grande Company already had a line in operation from Pueblo to Cañon City, this would be a vital blow, and a project beset with unusual difficulties. Mr. Morley was directed to undertake it, but before he had time to arrange his plans the Denver & Rio Grande Company quietly prepared a grading crew, and started them by rail to Cañon City. Mr. Morley learned of this movement at Pueblo, and, without a moment's delay, mounted a fleet horse and rode his famous 40 miles race by night to Cañon City, beating the train by half an hour, which was time enough for him to get together a little grading party and occupy the narrow gorge with his volunteer assistants of merchants, laborers and farmers before the rival engineers could reach the ground. He had no organized force at Cañon City when he arrived, and not a soul knew of his approach, but he held the Royal Gorge, and built 12 miles of railroad during a time when the two companies had several hundred men under arms, and desperate work was daily expected. This exploit gave him a great reputation all through the West, and it was celebrated in many dramatic descriptions, both in poetry and prose, in the press of that region.

The difficulty having been finally placed in the hands of the attorneys, to be adjusted in the courts, Mr. Morley went south in July, 1879, with headquarters at Las Vegas, New Mexico, in charge of the construction of a portion of the road being then built to connect with the Southern Pacific.

In 1880 he was appointed Chief Engineer of the Sonora Railway Company, and was entrusted by President Nickerson with building that road from Guaymas northward to a connection with the Atchison, Topeka & Santa Fe Railroad, on the Mexican boundary, a distance of 265 miles. This he accomplished in two years and a half, and while it is undoubtedly his greatest work, its real merit and magnitude will perhaps never be appreciated save by those who personally knew the enormous difficulties he encountered. Commencing at Guaymas, he was cut off from all direct communication with the United States. Correspondence was slow and irregular, taking three to four weeks to receive replies from San Francisco, and six weeks to hear from Boston.

Timber and supplies had to be brought by coasting vessels from San Francisco, railroad machinery and iron from England. All the conditions were new and strange. The people were suspicious, contemptuous and hostile to Americans and their enterprises. Officials were arrogant and annoying in their conduct in many cases. Labor was difficult to obtain, and still more difficult to keep. The climate was of torrid heat and debilitating in the extreme to Northern men. All these obstacles and many more he met and overcame. He left San Francisco early in April. His party of assistants, organized in New Mexico, which should have started overland in March, was unaccountably detained six weeks while Mr. Morley reached the field of his labors in April, alone, and powerless to move till their arrival, late in June. He tried to form a party of natives and run temporary lines, but the work of such a party, not one of whom had ever seen a level, was only a vexation which he had to endure while waiting the arrival of teams, instruments and skilled men. Thus the very beginning of this work was a struggle, and its continuance was full of difficulty. Nevertheless, he not only built the road, the cheapest and best in Mexico at that time, but such was his remarkable executive ability and personal magnetism, that it is said he became the most influential individual in the state, and left every man along the line of the road his personal friend. His frequent trips to the boundary and to Tucson were always events among the ranchmen and their families, and they looked forward with delight to the coming and going of his familiar white-topped wagon and mules. He rarely failed to bring them presents, and they frequently returned his attentions in many characteristic ways. When all had failed that could be done by others with some obdurate landowner, Mr. Morley would go up the line, talk and smoke awhile, and in a few hours the man would execute the papers he obstinately had refused for weeks to sign, and that man was thereafter Mr. Morley's life-long friend. He completed his work loved by every Mexican who had known or met him, although two years before they were prepared to hate the leader of the railroad invasion into their country.

The difficulties that daily arose and were overcome, not only directly connected with the enterprise, but numerous and annoying occurrences outside, made the position extremely trying. His real happiness depended on pushing his work, and in Mexico it was impossible to do this, as no one ever hurries. All his laborers being natives, the progress of the road depended largely upon the caprices, feast days and changeable wills of the Yaqui Indians. The situation can probably be better understood from the fact that eighteen months of unbroken effort passed before the road reached Hermosillo, the capital of the state, and only 90 miles north of Guaymas. This first year's struggle broke his health permanently, but he would have died in Sonora rather than have given up the enterprise after resolving to complete it. Thus the Sonora road was finished, the latter 175 miles being built in one year and the last spike driven Oct. 25, 1882. In the same month, having accepted the position of Chief Engineer of the Mexican Central Railroad, with headquarters in Chihuahua, he at once proceeded to make a reconnaissance of the line from Chihuahua to Zacatecas, and upon the observations and reports he then made the road is now being built. While re-

THE SCRAP HEAP.

The New York Railroad Commission on Heating Cars.

The New York Railroad Commission recently adopted the following resolution:

"Resolved, That the attention of the railroads of the state be drawn to the improved systems of ventilation now in vogue on certain leading roads, and that they be commanded to adopt the same in all passenger cars as soon as it is practicable.

"Resolved, That a recommendation be issued to all the railroads in the state of New York to place a Fahrenheit thermometer in all passenger cars, about the centre thereof, as is now done in many of the drawing-room cars, and to instruct those charged with maintaining the temperature to keep it as nearly as may be at the point of 70 degrees. Also that said thermometer be compared from time to time with a standard thermometer, in order to insure accurate register."

The Woman Who Jumped.

Coming down on the road the other day from Detroit was a young woman who had her heart set on being the first one to get off the cars at Owosso. The engine slackened up a little, and the young woman who was about to give an exhibition of her agility in getting off a train of cars very quick, while they were in motion, made her calculation, and, striking an attitude about as graceful as that of a woman who is splitting wood or frightening chickens, she let herself go. Before she got through with the acrobatic act she was performing in the sand; every part of her frame had pounded the soft earth. The 150 people who stood about the depot were in perfect amazement at the whirlwind of sand, bustle, hair, striped hose, ribbon and crinoline that was taking place at the rear end of the cars. When the momentum had ceased and the form of the misguided young woman lay in a disordered heap on the ground, the crowd rushed to her assistance. "Are you hurt?" "Can you stand?" and similar questions were asked her, but she made no reply. She soon recovered from the shock, however, and her first thought was her "bangs." Both hands flew to her forehead to examine the condition of the gorilla-like fringe that was hanging there. She adjusted it, and then remarked, "I'm all right." Her hat was found about 20 feet from the spot where dire confusion had so recently reigned, which she put on and walked away as though nothing had happened.—*Grand Rapids (Mich.) Leader.*

Trial of a Centre-Support Truck.

A special trial was recently made of the centre-support truck invented and patented by Mr. S. Finlay, Master Mechanic of the Hot Springs Railroad. This truck has been placed under a 34 ft. flat car, which was run over the very short curves on that road, the difference in the motion contrasting with that of an ordinary flat car coupled to the train.

The truck is thus described by the *Hot Springs Sentinel*: "The invention is, as its name implies, a centre support truck for cars, by the use of which cars may be built of greater length, support a much greater weight, and at the same time allowing them to turn the shortest curve without climbing the rail. It is constructed the same as the ordinary truck with the exception of the ball-and-socket joint, instead of which a channeled casting is placed lengthwise on the spring or bolster, which receives a roller fastened to the bottom of the frame-work of the car. Near each end of the bolster, a pair of small wheels lying on top of a friction roller, which are held in place by a casting-roll on the under side of two parallel wrought-iron bars made fast to the sills of the car; these support on either side the tipping strain. Between the pairs of friction wheels an upright carries a friction roller which comes in contact with the inner edges of the parallel bars whenever the truck leaves a right angle with the line of the car."

A Dynamite Explosion.

A dispatch from Confluence, Pa., Oct. 29, says: "A terrible disaster occurred near Brooks' tunnel, on the Baltimore & Ohio Railroad, yesterday morning about nine o'clock, resulting in the instant killing of five men. The railroad company has been strengthening and widening the tunnel, and some distance outside a magazine had been erected in which was stored 1,200 pounds of dynamite to be used for blasting. A freight train had just passed through the tunnel and was side-tracked to allow an overdue passenger train to pass. Four of the crew of the freight train walked back to the vicinity of the magazine and were engaged in conversation with the watchman, when the people living in the vicinity were startled by a terrific concussion. Houses for fifteen miles around were shaken to their foundations, and windows for a distance of seven miles were shattered. Horror-stricken, the people ran from their houses, and upon investigation it was found that the dynamite had exploded with fearful effect. Everything in the vicinity gave evidence of the terrible force of the explosion; trees were uprooted, huge rocks were torn asunder, and telegraph poles for half a mile were prostrated. Nothing remained of the magazine, and the men who stood near it just before the explosion were missing. All must have been instantly killed. Portions of bodies, including legs, arms, hands and heads have been picked up half a mile distant, but so badly disfigured as to be unrecognizable. The names of only three of the victims are known, George Reynolds, the engineer; Tice, a brakeman, and Hammond, the watchman.

"The cause of the explosion is enveloped in mystery; and as the five men who might have thrown some light on the account are dead, it is probable that the cause will never be known. Not far from the scene a gun was found, and it is supposed that one of the victims discharged it, the concussion causing the dynamite to explode. An inquest was held to-day by the Coroner, and a verdict of accidental death was rendered. Great excitement prevails here, and hundreds of people have gone to the scene of the disaster."

Railroad Equipment of the World.

It is estimated in the *Engineer*—but the sources of information are not given—that the world's stock of locomotives consists of 66,000; of passenger cars, 120,000, and of freight cars, 500,000. The capital invested in railways, which are in all 200,000 miles long, is £4,000,000,000. The commerce of the seas is carried by 12,000 steamers and 100,000 sailing vessels, whose tonnage amounts to over 20,000,000 tons.

History of Continuous Brakes.

Mr. Clement E. Stretton, in reply to the inquiries of a correspondent of the *English Mechanic*, gives, in the same paper, the following interesting items of the history of brakes:

"The first continuous brake (that is, the first system intended to apply retarding force to each vehicle in the train) was invented by George Stephenson as long ago as 1832. It acted through the medium of the buffer rods and was put in operation as soon as the train received a check from steam being shut off and the tender hand brake being applied. Some of the vehicles were fitted with brake-blocks to press against the wheels; others with sledge brakes to press on the rails. After trials had been made on the Liverpool &

Manchester and Leicester & Swannington Railways, it was found that this brake could not act on the rear vehicles of trains, and it appears to have been abandoned in consequence of backing the train. The first steam brake was invented by Robert Stephenson. A patent was issued to him bearing date at Westminster, Oct. 7, 1833, No. 6,484, and was tried on the Liverpool & Manchester and Leicester & Swannington Railways. It has always been understood that the object of this powerful steam brake was in the first instance to give the necessary check which was required to bring the buffer-brake into action. In reply to the third part of the question, the Westinghouse air-pressure brake was adopted first by the Pennsylvania Railroad, U. S. A., in 1869; it was not until 1872 that it was brought to this country. In the early part of the year 1872 the Canadian Railway Co. fitted a trial train with the air brake and signaling apparatus; on March 15 it was put into daily working between Glasgow and Wemyss Bay. A very important official trial took place March 28, 1872. Full details of the brake, and also the results obtained, were published in the *English Mechanic* at the time, volume XV., page 295. The Westinghouse automatic brake was invented 1871, tried in America in 1872, and first introduced into this country upon the Midland Railway. The company fitted it to a new train (consisting of engine and tender, No. 134, and fifteen vehicles), which was sent to the celebrated Newark Brake Trials, June 9 to 16, 1875. At the conclusion of the trials this train was put into regular working between Bedford and London, from July 16, 1875, to June 3, 1876. This became quite a show train, as engineers from all parts of the country and the Continent rode in it to examine the working of the brake."

The Bond Question.

"Father," he said, as he suddenly looked up from his book, "don't you own a stone quarry in Wisconsin?"

"Yes, my son."

"Couldn't you issue bonds to the extent of \$25,000,000 if you wanted to?"

"Certainly."

"Wouldn't Drexel, Morgan & Co. or some other big banking firm sell them on commission?"

"They would if guaranteed expenses for advertising."

"Then you are as big a man as the Northern Pacific Railroad, ain't you?"

"Of course."

"Well, that's what I told the boys all the time, and they said you couldn't get over 30 cents on the dollar for the bonds."

"Hush, child! If I could get 25 it would be a rich thing for the quarry and a lean bone for investors."—*Wall Street News.*

A Valuable Employee.

One of the most valuable employees in the office of the Valley Railroad at Cleveland is a diminutive dog, whose name of "Pug" likewise defines his breed. His perfect points leave no room for doubt that his blood is of the bluest, and that his ancestors were familiar with palaces. But however aristocratic his lineage he takes a genuine pride in honest toil, and moreover has already done much to vindicate his race from the charge of stupidity. His chief duty is the carrying of bills, letters and dispatches from one office to another. If the recipient of any document delays to give him a receipt showing that it has been safely delivered, he utters a loud complaint, to which immediate attention must be paid.—*Cincinnati News-Journal.*

Trial of an Automatic Freight Car Brake.

The Rote automatic freight car brake has recently been fitted on a gondola car of the Pennsylvania Railroad at the Penn Iron Works in Lancaster, Pa. A preliminary trial last week was very successful, and the brake is to be given an extended trial on the road shortly.

A Wedding in a Baggage Car.

A very romantic marriage took place on Wednesday evening on a Hemphill passenger train en route from this city to Washington, Pa. The contracting parties were Mr. James Hannan, of Pittsburgh, and Miss Annie Stevens, of Antrim, Guernsey County, Ohio. The two young people had been betrothed for some time, and in their case the course of true love seemed to run smooth for once. The nuptials were to be celebrated at Miss Stevens' Ohio home on Wednesday evening, and Mr. Hannan arrived here the day before. On Wednesday morning, while preparations were in an advanced stage, Mr. Hannan received a telegram requiring his immediate presence in Pittsburgh. As delay would sacrifice important business interests, it was resolved that he should go. Barely time enough to catch the train remained, but Miss Stevens agreed to accompany her lover, and it was arranged that they should go from this city via the Hemphill, and as soon as the Pennsylvania line was crossed have the ceremony performed. The Rev. E. R. Jones, of Martin's Ferry, a friend of the groom, was telegraphed for and met the couple in this city. The three made their wishes known to the conductor of the evening train on the Hemphill, and he gave them the freedom of the baggage car, where, as the train neared West Alexander, the ceremony was performed by Mr. Jones in the presence of the train's crew.—*Wheeling Register.*

ANNUAL REPORTS.

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Green Bay, Winona & St. Paul.

This company owns a line from Green Bay, Wis., to Marshland, 209.5 miles, with branches from Marshland to Eastmoor, 3 miles; Onalaska to La Crosse, 6.5 miles, and Plover to Stevens Point, 6 miles—a total of 225 miles. Its trains use under contract the Chicago & Northwestern tracks from Marshland to Onalaska, 23 miles, and from Marshland to Winona, Minn., 4.5 miles. The following statements are from the report to the Wisconsin Railroad Commissioner for the year ending June 30.

The road carried during the year 101,618 passengers and 141,946 tons of freight in all.

The earnings and income account were as follows:

Freight.....	\$246,885
Passenger.....	150,967
Miscellaneous.....	8,049
Total (\$1,804 per mile).....	\$405,931
Expenses (79.81 per cent.).....	323,975
Net earnings (\$304 per mile).....	\$81,956
Other receipts.....	17,849
Total.....	\$99,805
Rentals and interest.....	111,323

Deficit for the year..... \$11,518
The amount paid for new construction during the year was \$24,567, and for new equipment \$3,280, making a total of \$27,847 for additions to the property.

Boston & Albany.

The annual report of this company to the Massachusetts Railroad Commission for the year ending Sept. 30 shows that the mileage worked is now 374 miles, against 369 a year ago. During the year the company bought that portion of the New York & New England's Woonsocket Division, extending from Brookline Junction to Cook street station, paying \$411,000 for it.

The equipment consists of 244 locomotives, 203 passenger, 16 parlor and 49 baggage, mail and express cars; 5,896 freight cars of all kinds, and 651 other cars.

The total number of employees on the road was 5,293, against 4,746 in the previous year.

The traffic for the year was as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Train-miles.....	1,882,83.	1,805,924	I.	19,157 1.1
Passenger.....	1,825,981	1,805,924	I.	15,148 0.5
Freight.....	3,121,177	3,106,029	I.	46,482 7.1
Other.....	705,044	678,562	I.	26,482 3.9
Total.....	5,651,302	5,570,515	I.	80,787 1.4
Passenger cars.....	8,070,072	7,524,138	I.	545,934 7.4
Passenger-miles.....	157,255,971	151,255,032	I.	6,000,939 4.0
Tons freight carried.....	3,411,324	3,415,329	D.	4,005 0.1
Ton-miles.....	373,535,456	374,317,238	D.	781,882 0.2

	Av. train load:		
Passengers, No.....	86	84	I.
Freight, tons.....	120	121	D.
Av. receipts:			
Per passenger mile.....	1.99 cts.	1.97 cts.	I.
Per ton-mile.....	1.20 cts.	1.07 cts.	I.

Of the ton-miles last year through traffic furnished 66.6 per cent., and local business 33.4 per cent. Of the passengers carried 6,901,055 were local, including 1,680,653 season-ticket passengers.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Freight.....	\$4,472,180	\$3,984,132	I.	\$488,048 12.2
Passenger.....	3,631,776	3,014,101	I.	617,675 7.9
Mail, express, etc.....		348,972	I.	
Total.....	\$8,103,956	\$7,346,205	I.	\$757,751 10.3
Expenses.....	6,158,904	5,600,990	I.	557,914 10.0
Net earnings.....	\$1,945,052	\$1,747,275	I.	\$197,777 11.3
Rentals, etc.....	435,919	442,108	D.	6,189 1.4
Net income.....	\$2,380,971	\$2,189,383	I.	\$191,588 8.8

The large increase in freight earnings was due to the increase in the average rate, there being a trifling decrease in the freight traffic.

The income account for the year was as follows:

Net income for the year.....	\$2,380,971
Rentals.....	75,000
Interest.....	662,900
Dividends, 8 per cent.....	1,407,100
Surplus for the year.....	\$235,971
Surplus Sept. 30, 1882.....	\$2,632,921
Less loss on South Boston Falls.....	70,008
Surplus, Sept. 30, 1883.....	\$7,798,794

The number of passengers injured during the year was 6; of employees killed, 13, and injured 147. There were also 18 other persons killed and 44 injured, making in all 81 persons killed and 201 injured, a total of 232 casualties for the year.

Port Royal & Augusta.

This company owns a line from Port Royal, S. C., to Augusta, Ga., 112 miles. The following statements for the

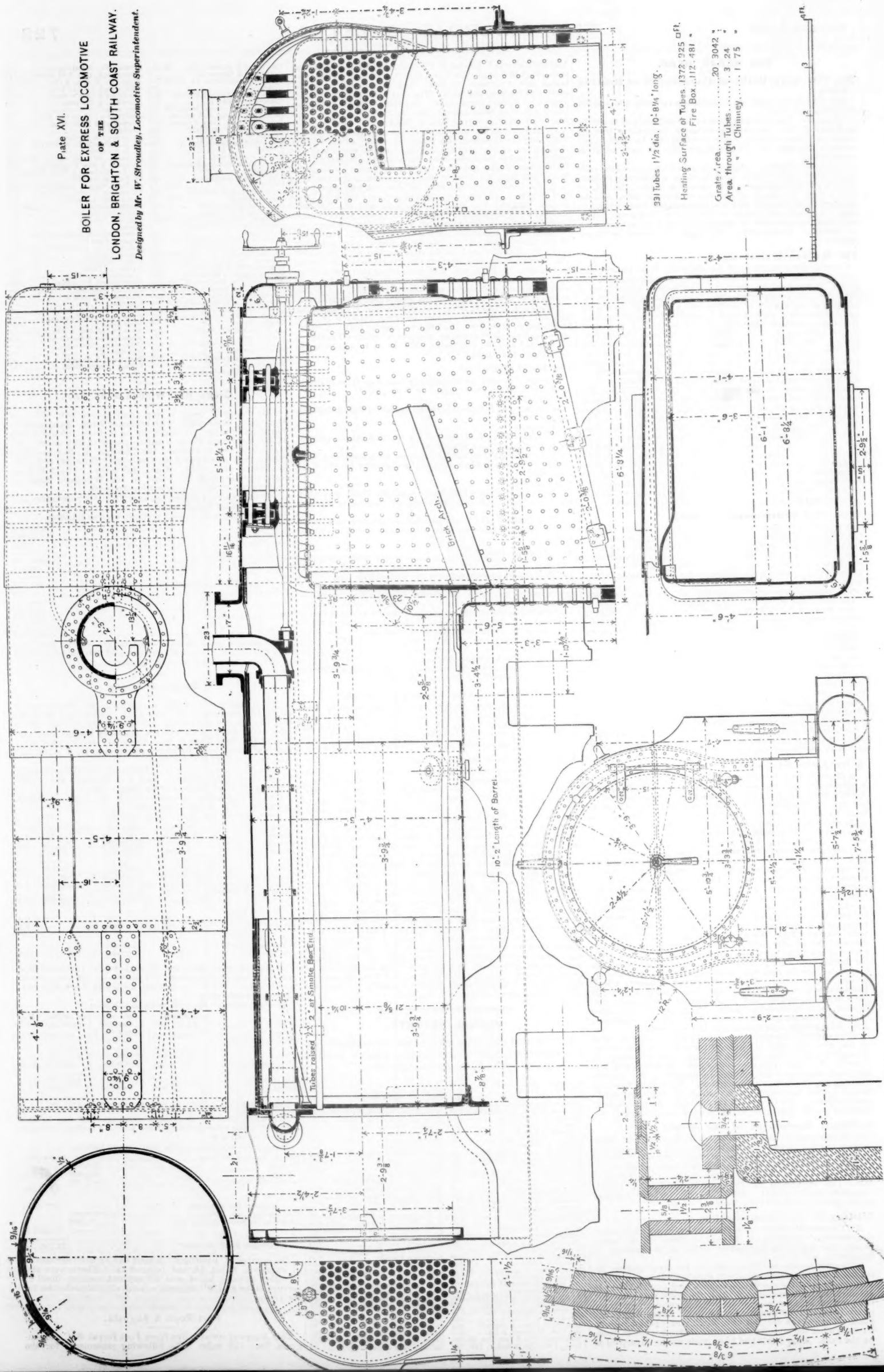
Plate XVI.

BOILER FOR EXPRESS LOCOMOTIVE

OF THE

LONDON, BRIGHTON & SOUTH COAST RAILWAY.

Designed by Mr. W. Shroudley, Locomotive Superintendent.



331 Tubes 1 1/2 dia. 10' 8 1/4" long.

Heating Surface of Tubes, 1372.225 sq ft.

Fire Box, 112.481

Grate Area, 20.3042

Area through Tubes, 3.24

" " Chimney, 1.75

year ending June 30 were presented at the recent annual meeting.

The funded debt consists of \$250,000 first-mortgage 6 per cent. bonds; \$1,500,000 general mortgage 6 per cent. income bonds, and \$150,000 second-mortgage 6 per cent. bonds, guaranteed by the Central, of Georgia, which controls them.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Earnings.....	\$307,100	\$329,235	D. \$13,135	4.1
Expenses.....	272,113	280,228	D. 8,115	2.9
Net earnings.....	\$34,987	\$49,007	D. \$5,020	12.5
Gross earn. per mile.....	2,742	2,859	D. 117	4.1
Net ".....	312	357	D. 45	12.5
Per cent. of expenses.....	88.61	87.51	I. 1.10	

The expenses include the cost of renewing three spans of the bridge over the Savannah River, which were completed in September at a cost of \$15,360, which should be considered as an extraordinary expense, in excess of ordinary working expenses and renewals. During the current year the bridge over Whale Branch will have to be replaced by a new one.

Of the \$150,000 second-mortgage bonds excluded, \$50,000 have been issued in exchange for the old 8 per cent. equipment bonds, \$50,000 sold at par and \$21,000 issued at par in settlement of obligations, making \$121,000 issued and \$29,000 still on hand. The money received for the bonds sold was all used in settlement of the floating debt, which is now entirely paid off.

Mobile & Ohio.

This company owns a main line from Mobile, Ala., to East Cairo, Ky., 493 miles; the Columbus Branch, 14 miles; the Starkville Branch, 11; the Aberdeen Branch, 9 miles; a total of 527 miles of road, with 49.59 miles of sidings. The report is for the year ending June 30.

The equipment consists of 81 locomotives; 32 passenger, 8 baggage and mail and 5 express cars; 785 box, 157 stock and 317 flat cars; 9 tool cars. Of this equipment 8 locomotives, 3 passenger cars, 57 box and 10 stock cars are held under car trusts.

The general account is as follows, condensed:

Stock.....	\$5,320,600.00
Funded debt.....	16,290,000.00
Current accounts and interest.....	273,462.41
Special accounts, trusts, etc.....	372,539.63
Profit and loss, Land Dep't.....	24,292.66
general.....	175,332.13
Total.....	\$22,456,226.83
Road and property.....	\$20,852,281.40
Land Department.....	587,433.10
Sinking fund.....	256,000.00
Car trusts and renewal fund.....	227,873.51
Special deposits to meet interest.....	40,164.50
Current accounts.....	61,121.67
Materials.....	397,390.40
Cash.....	38,956.25
Total.....	\$22,456,226.83

The funded debt consists of \$7,000,000 first-mortgage bonds; \$600,000 Cairo Extension bonds; \$40,000 wharf bonds; \$5,300,000 first-preferred income and sinking fund debentures; \$1,850,000 second-preferred debentures; \$600,000 third-preferred debentures and \$900,000 fourth-preferred debentures. The debentures receive interest only when earned.

The traffic for the year was as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Train miles.....	419,673	418,704	I. 969	0.2
Passenger.....	774,825	737,015	I. 37,810	5.1
Freight.....	306,548	337,583	I. 28,466	8.4
Service and switching.....	1,590,547	1,493,302	I. 67,245	4.5
Total.....	300,725	303,952	D. 3,227	1.1
Passenger-miles.....	13,335,825	12,409,125	I. 926,700	7.5
Tons freight carried.....	557,493	545,755	I. 11,738	2.1
Ton-miles.....	75,330,863	75,184,535	I. 146,328	0.2
Av. train load.....	32	30	I. 2	6.7
Passengers, No.....	97	102	D. 5	4.9
Freight, tons.....	32	30	I. 2	6.7

There were 239,974 bales of cotton carried last year, against 232,230 the previous year, an increase of 7,744 bales, or 3.3 per cent. Through business formed 23 per cent. of the passenger traffic last year. Of the freight traffic 39.9 per cent. was north-bound, and 60.1 per cent. south-bound.

The earnings for the year were as follows:

	1882-83.	1881-82.	Inc. or Dec.	P. c.
Freight.....	\$1,716,339	\$1,617,932	I. \$98,407	6.1
Passage.....	427,960	401,701	I. 26,259	6.5
Mail and express.....	74,924	77,080	D. 2,156	5.1
Miscellaneous.....	52,696	66,652	D. 13,956	20.8
Total.....	\$2,271,919	\$2,163,375	I. \$108,544	4.9
Expenses.....	1,641,025	1,602,145	I. 38,880	2.4
Net earnings.....	\$630,893	\$561,230	I. \$69,663	12.4
Gross earn. per mile.....	4.309	4.107	I. 202	4.9
Net ".....	1.196	1.067	I. 129	12.1
Per cent. of exps.....	72.26	74.03	D. 1.77	

The proportion of expenses to earnings is still high, partly because much of the through business is taken at low rates.

The income account is as follows:

Net earnings.....	\$630,893.43
Balance from previous year.....	2,925.38
Total.....	\$633,818.81
Interest on first-mortgage bonds.....	\$420,000.00
" Cairo Extension bonds.....	36,000.00
Interest and exchange.....	1,626.68
Dividend, 3 per cent., on first-preferred debentures.....	159,000.00
Balance, June 30, 1883.....	\$16,332.13

No interest payments have yet been made upon any of the debentures except the first-preferred, which last year received 3 per cent., against 2 per cent. in the previous year.

The receipts from sales of land during the year were \$29,039, and the expenses of the land office were \$11,384, leaving a net balance of \$17,655. The land unsold now amounts to 1,104,453 acres. The Land Commissioner reports that extensive depredations are made on the timber lands of the company, and in the present condition of the law it is very difficult to stop them. Arrangements have therefore been made with responsible parties to establish large saw-mills, with a view to using the timber as fast as possible.

The report says: "There has been added to the sinking fund during the year \$55,500 of the first preferred debentures at a cost of \$45,314. Of this amount there was realized from the sale of lands \$40,884, and from interest-dividends on debentures held on account of sinking fund \$4,430. The total amount of the sinking fund on June 30, 1883, invested in first preferred debentures is \$256,000. The debentures so acquired for account of the sinking fund are not canceled, but are transferred in trust to the Farmers' Loan & Trust Co., and stamped 'not negotiable,' and the interest dividends thereon as collected are reinvested for account of the same fund.

"Beyond the current expenses for the month of June,

which are payable on or before the 15th of the next succeeding month, the only floating indebtedness appears in bills payable, and results from the company having assumed the advance of \$100,000, incurred in the completion of the Kentucky & Tennessee Railroad (Cairo Extension), which advance is referred to in the last annual report as under the guarantee of this company."

Grand Trunk.

The report of this company for the half-year ending June 30 last shows that the mileage worked was reduced during the half-year from 2,320 1/2 to 2,313 miles, which is accounted for as follows: The rails of the portion of the Georgian Bay & Lake Erie Division, running parallel to the Wellington, Grey & Bruce Railway for 15 miles, between Listowell and Harrison, were taken up; 2 1/2 miles of railway were constructed to connect the Grand Trunk and Great Western sections between Sarnia and Point Edward; and the Montreal & Champlain Junction line was extended 4 1/4 miles to Howick.

The report says: "It will be seen from the accounts that \$941,286 perpetual 4 per cent. consolidated debenture stock was issued during the half-year. Of this amount, \$750,000, issued under the prospectus of April 3 last, was mainly for the purpose of redeeming pre-preference securities, and the balance of \$191,286 has, since that date, been issued in exchange for bonds of the Wellington, Grey & Bruce Co. and shares of the Chicago, Detroit & Canada Grand Trunk Junction (Detroit & Port Huron) line. The issue of this debenture stock has not increased the pre-preference charges of the company. The expenditure on capital account included \$38,296 for extensions and other new works and connections between the Grand Trunk and Great Western sections, and \$100,142 for the new rolling stock."

The traffic reported is as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Passengers carried.....	1,675,457	2,171,341	D. 495,884	9.6
Tons freight carried.....	2,685,011	2,955,228	D. 270,217	9.1
Av. receipt per pass'ger.....	64.4d.	60.4d.	I. 4d.	6.7
Av. receipt per ton.....	99 3/4d.	77d.	I. 22 3/4d.	29.5

The passenger train earnings show a decrease of \$11,451, or 1.9 per cent., while the freight earnings increased \$167,491, or 17.6 per cent. The decrease in traffic was due to the very severe winter and to the transfer of the Michigan Central traffic to the Canada Southern. The increase in freight earnings was due partly to better rates, and partly to increased length of haul over the main line resulting from the consolidation.

The earnings for the half-year were as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Earnings.....	\$1,711,090	\$1,556,070	I. \$155,020	10.0
Expenses.....	1,247,239	1,171,079	I. 76,160	6.5
Net earnings.....	\$463,751	\$384,991	I. \$78,760	20.5
Interest and dividends received.....	51,320	46,553	I. 4,767	10.1
Net income.....	\$515,171	\$431,544	I. \$83,627	19.4
Per cent. of exps.....	72.89	75.25	D. 2.36	

The decrease in the proportion of working expenses was made in spite of the heavy expenses caused by a very severe winter. Part of it was, of course, due to the increase in rates.

The income account was as follows:

Net income, as above.....	\$515,171
Rents.....	\$83,814
Interest on bonds and loans.....	47,446
Interest on debenture stock.....	182,562
Surplus for the half-year.....	\$201,349

This balance of net revenue, divided in accordance with the provisions of the deed of union, yields, in the proportions of 70 per cent. to the Grand Trunk share capital, the sum of \$140,944, and of 30 per cent. to the Great Western share capital, the sum of \$60,404. The amount of \$140,944 thus appropriated to the Grand Trunk share capital, added to \$435, the undivided surplus on Dec. 31, 1882, makes a total of \$141,379, which will permit of the payment of the full half-year's dividend at the rate of 5 per cent. on the first and second preference stocks, amounting to \$138,529, and will leave a balance of \$2,850 to be carried forward to the next half year. The amount of \$60,404 thus appropriated to the Great Western share capital, added to the undivided surplus on Dec. 31 last, of \$614, makes a total of \$614,019.

The directors recommend for the approval of the shareholders, in accordance with the provisions of the deed of union, the payment of \$12,643 as full dividend on the Great Western 5 per cent. preference stock, and \$91,752, being at the rate of 3 per cent. on the Great Western ordinary shares, making a total of \$104,395, and leaving a debit balance of \$43,376 for adjustment at the end of the year.

The report says: "The following agreements, which will be submitted at the meeting for the approval of the proprietors, are printed in *extenso* as appendices to this report.

"1. An agreement with the North Shore Railway Co. and the Jacques Cartier Union Railway Co.

"The object of this agreement is simply to extend the period for the construction of the Jacques Cartier Union Railway Co.

"2. An agreement between the Grand Trunk Railway Company and the Midland Railway Co. of Canada.

"It will be remembered that a traffic agreement was made between the two companies, dated May 10, 1882, under which the five railways comprising the existing Midland system were consolidated into one undertaking; and these railways have since been worked under a President and board, having separate control, though in connection with, and in interest of, the Grand Trunk system. That arrangement has proved so far beneficial in preventing injurious competition, and has had the effect of protecting the interests of the Grand Trunk Co. from the evil effects that it would have resulted if the Midland system, or any portion of it, had fallen into hostile hands. The preliminary object having been thus attained, the further step now becomes desirable of promoting still greater unity of action and greater economy of working, by operating the Grand Trunk and Midland railways as one system. With this view it is now proposed that the Midland Railway shall, from Jan. 1, 1884, be taken over and worked as part of the Grand Trunk system; the Grand Trunk Co. undertaking to supplement the net receipts of the Midland Co., if necessary, by payment out of the gross receipts from traffic carried upon the said railway, an amount sufficient to secure the interest on the bonds of the Midland Co., as was previously agreed in regard to bonds of sections of that company. Of the total share capital of \$8,600,000 of the consolidated Midland system, an amount of \$4,316,920 is held by the Grand Trunk Co., which has therefore a very important interest in the future success of the Midland Railway.

"3. An agreement with the Welland Railway Co.

"In the year 1872 the Great Western Railway Co. entered into an agreement for the use of a portion of the Welland Railway about 15 miles long, situated between the Great Western main and loop lines, at a rental of \$1,800 per annum. The Great Western Co. undertook to place and

maintain that portion of the Welland line in efficient repair, and to make the connections necessary for interchange of traffic between the two lines. Under the proposed agreement it is provided that the whole of the Welland Railway, extending from Port Dalhousie, on Lake Ontario, to Port Colborne, on Lake Erie, a distance of 25 miles, shall be taken and worked as part of the Grand Trunk system. The Grand Trunk Co. is to receive the whole share capital of the Welland Company, and to secure the payment of interest at the rate of 4 per cent. per annum on \$166,952 debenture stock of the Welland Railway, of which \$25,685 is to be handed to the Grand Trunk Co. to recoup expenditure previously made by the Great Western Co.

"The sum of \$160,685 (\$23,017) was expended during the half-year, and a further expenditure of \$240,667 (\$49,452) is to be made in the purchase of securities of the Central Vermont Railroad Co. and of the Consolidated Railroad Co. of Vermont, with a view to the control of the Central Vermont system, which is in course of re-organization."

Cumberland Valley.

This company owns a line from Harrisburg, Pa., to Williamsport, Md., 82.2 miles. It leases and chiefly owns the Martinsburg & Potomac road, from Williamsport to Martinsburg, W. Va., 12 miles; the Southern Pennsylvania, from Junction to Richmond, Pa., with a spur to Mercersburg, 21.4 miles in all, and the Dillsburg & Mechanicsburg, a branch to Mechanicsburg, Pa., 7.7 miles. It owns, but does not lease, the Mont Alto road, from Mont Alto Junction to Waynesboro, Pa., 18.3 miles. This makes a total of 141.6 miles worked under its control. The report is for the year ending Dec. 31.

The equipment consists of 21 locomotives; 25 passenger, 4 combined passenger and baggage, 4 mail and baggage and 2 express cars; 191 box, 26 stock, 199 gondola and 5 caboose cars.

The general account is as follows, condensed:

Stock, first preferred.....	\$241,000
" second preferred.....	243,000
" common.....	1,292,950
Funded debt.....	\$1,777,850.00
Dividends and coupons.....	352,300.00
Profit and loss, balance.....	48,972.95
Total.....	\$2,796,038.32
Road and property.....	\$1,912,496.47
Materials on hand.....	52,674.77
Trustees of contingent fund.....	635,088.50
Balance of accounts.....	123,562.25
Cash.....	72,276.33
Total.....	\$2,796,038.32

The funded debt consists of \$161,000 first mortgage bonds, \$109,500 second mortgage bonds and \$81,800 common bonds; these common bonds matured Jan. 1, 1883, and were then paid. The contingent fund is chiefly invested in the leased lines.

The traffic for the year was as follows:

	1882.	1881.	Inc. or Dec.	P. c.
Train miles.....	248,602	235,893	I. 12,709	5.4
Passenger.....	195,181	194,077	I. 1,104	0.6
Freight.....	537,785	518,383	I. 19,402	3.7
Total loco. miles.....	501,943	452,932	I. 49,011	10.8
Passenger-miles.....	9,708,700	8,967,357	I. 741,343	8.3
Tons freight carried.....	610,844	547,438	I. 63,406	11.6
Ton-miles.....	21,673,434	18,364,654	I. 3,308,780	18.0
Av. train load.....	30	28	I. 2	7.1
Passengers, No.....	111	95	I. 16	16.7
Freight, tons.....	30	28	I. 2	7.1
Av. rate.....	1.874 cts.	2.107 cts.	D. 0.233 cts.	11.1

The passenger traffic above is for the main line and leased lines; the freight for the main line only. The total tonnage moved, including all lines, was 613,425 tons. The average passenger journey was 19.4 miles last year; the average freight haul, 35.6 miles.

The earnings for the year were as follows:

	1882.	1881.	Decrease.	P. c.
Freight.....	\$406,113	\$386,856	\$19,257	5.0
Passengers.....	224,750	204,525	20,225	9.9
Mail, etc.....	58,443	31,157	27,286	88.0
Total.....	\$689,306	\$622,538	\$66,768	10.7
Expenses.....	459,854	402,108	57,746	14.4
Net earnings.....	\$229,452	\$220,430	\$9,022	4.0
Gross earn. per mile.....	6.386	7.392	794	10.7
Net ".....	2.792	2.688	104	4.0
Per cent. of exps.....	68.71	64.57	2.14	

There was a considerable increase in gross earnings and expenses, and a small gain in net earnings. These earnings are for the main line only.

The operations of the leased and controlled lines were as follows:

	Dillsb & Mich.	So. Penna.	Martinsb & Pot.	Mont Alt.
Earnings.....	\$29,227	\$24,754	\$19,597	\$30,431
Expenses.....	16,212	22,485	21,333	25,921
Net earn.....	\$13,015	\$2,269	\$1,735*	\$4,510
Earn. per m.....	3.796	1.157	1.633	1.863
Net per m.....	1.690	106		246
P. c. of exps.....	55.53	90.67	108.84	85.18

*Deficit.

Full renewals were made on all these roads. The large amount of expenses on the Southern Pennsylvania and the Martinsburg & Potomac roads was due to renewal of bridges. The Mont Alto road carried 72,233 passengers and 46,625 tons of freight.

The income account is as follows:

Net earnings, as above.....	\$229,452.33
Interest on bonds.....	\$26,548.00
State tax.....	11,807.63
Dividends, 10 per cent.....	177,785.00
Surplus for the year.....	\$13,311.70
Balance Jan. 1, 1882.....	603,603.67
Balance, Jan. 1, 1883.....	\$616,915.37

During the year 797 tons of steel rails and 35,821 new ties were used in renewals; there were 1.53 miles of new sidings built. Four of the piers of the Harrisburg bridge were taken down and rebuilt, and three of the piers of the Potomac bridge were rebuilt.

One locomotive, four passenger, one combination, two mail and baggage and two express cars, 34 box, 10 stock and 30 gondola cars were added to the equipment.

The Shenandoah Valley road was completed during the year, and brought considerable business to this road at Hagerstown. The freight received from that road was 33,072 tons, including 6,432 tons live stock and 4,654 tons cotton; the freight delivered to it was 21,187 tons. The passenger business is increasing, and a considerable iron business is growing up.

The road and property is reported in excellent condition, a general improvement having been made during the year.



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EDITORIAL ANNOUNCEMENTS.

Passes.—All persons connected with this paper are forbidden to ask for passes under any circumstances, and we will be thankful to have any act of the kind reported to this office.

Addresses.—Business letters should be addressed and drafts made payable to THE RAILROAD GAZETTE. Communications for the attention of the Editors should be addressed EDITOR RAILROAD GAZETTE.

Contributions.—Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies, the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and in their management, particulars as to the business of railroads, and suggestions as to its improvement. Discussions of subjects pertaining to ALL DEPARTMENTS of railroad business by men practically acquainted with them are especially desired. Officers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.

Advertisements.—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN opinions, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

COLORED PERSONS IN THE CARS.

The recent decision pronouncing the civil rights law of 1875 unconstitutional attracts attention to the general question of the rights of colored persons in railroad cars. The meagre reports of the decision which have been received up to the time of our writing are well calculated to give superintendents and conductors the impression that there are no such rights; that carriers may now do as they find most popular and profitable in respect to assigning separate cars for negroes, excluding them from drawing-room, sleeping and dining cars, or, as New York street car companies used to do in "old times," requiring them to wait for the "colored car." Older readers will remember that rules of exclusion of this sort were formerly very general. They have been relaxed, partly under influence of a changed public sentiment and a tacit assent of white passengers that neat and well-behaved colored persons should enjoy the ordinary accommodations, partly from an increase in the number of colored persons desirous of travelling and able to pay equally with whites, and partly in obedience to the civil rights law, or to similar laws in the states. It is not to be expected that the obsolete restrictions will be restored, merely because the act of Congress forbidding them has been annulled. There may, however, be a desire in some localities and upon some roads to return to a policy of separating the races. Managers who have this question under consideration will do well not to act hastily on the idea that Judge Bradley's decision gives the companies entire freedom. For in truth the civil rights law of 1875 is only one of the legal supports on which a colored person might found an action for damages for excluding him from full accommodations in traveling. Other grounds for such claims deserve consideration.

1. **The Commercial Power of Congress.**—It is not certain that even Justice Bradley's opinion extends to travel on trunk lines and through trains. The argument in the case is understood to have turned upon the effect of the thirteenth and fourteenth amendments; and the Court is reported to have decided that these do not warrant Congress in legislating in behalf of colored people directly, but only authorize it to annul state laws which may be unjust or unequal. If this be the extent of the decision, it nullifies the congressional law as far as inns and theatres and all local accommodations are concerned, and even includes travel within the limits of any one state. But there is a gradually growing doctrine in the courts that, irrespective of the amendments, and in virtue of the general power to regulate commerce among the states, Congress has authority to legislate over through travel

on railroads; that is, over roads and trains which carry from one state to another. And it may easily be that, one day, when a colored man's lawsuit for refusing him accommodations on a through train comes before the court, and the company's counsel cites Justice Bradley's decision as an authority against it, Justice Bradley will interpose with the explanation: I said that the amendments did not support the civil rights law, and, therefore, it was void as to matters within a state. This is a case of travel between different states, and where that is in question the commercial power supports the law.

2. **The Right to Visit Washington.**—By using the sort of magnifying glass which judges and lawyers employ to detect minute "points" in their cases, one may see that the federal government has some power to keep the roads to the national capital open for the comfortable travel of all who wish to visit the seat of government. Early in the war, when a question arose of rebels in Baltimore cutting off communication between the North and the administration, it was easily seen that the government must have a right to protect travel toward its own headquarters. And such a right was recognized in the books. If it exists, it must comprehend the case of the humblest colored citizen wishing to travel from any part of the land to the capital city, and it must be competent to secure his rights on the way. Hence it may easily be that the Court would hold the civil rights law valid as to a holder of a ticket to Washington. But we do not understand that lawyers are finding their time much occupied by this class of cases at present.

3. **State Laws.**—They may exist if national laws are set aside. Louisiana enacted one in 1869. It forbade common carriers of passengers within the state to make any discrimination between passengers on account of race or color. Under this law a colored woman took passage on board a Mississippi steamboat, where she found two cabins—one for white and one for colored persons. She objected to the colored cabin, claiming admission to the white cabin, was refused, and brought suit. The state court sustained her suit and she recovered \$1,000 damages. It is true that the Supreme Court at Washington set this decision aside on the ground that the law was a regulation of commerce among the states, and therefore void; that "if the public good requires such legislation it must come from Congress and not from the states," which strongly corroborates the view that the law of 1875 may be constitutional and valid as respects inter-state travel. But if the Court has really abandoned that view, the effect must probably be to revive any state laws of former years, and encourage legislatures of states in which sympathy with equal rights of negroes prevails to pass similar statutes. During the past decade the subject has received but little attention in state legislatures. Some revival of interest in it may now be expected.

4. **Special Charters.**—A few instances are known of roads operated under special laws on the subject. In 1863 the Alexandria & Washington Railroad Company, which then ran from Alexandria to the south side of the Potomac at Washington, became desirous to extend its line northwardly, so as to connect with the Baltimore & Ohio Railroad and thus make a through line. Congress gave it leave to do so, and to go through Washington, upon condition that no person should be excluded from the cars on account of color. The company built the extension, and was accustomed to run two cars, one set apart for colored persons, the other for white. One day a colored lady passenger objected to this arrangement—purely upon principle it seems, for the cars were alike comfortable—and persisted in going into the car for white persons. The conductor put her out, and she brought an action. The Supreme Court decided that Congress intended that there should not be any discrimination on account of color among the passengers. It was not enough that the company would carry different races in the same trains; they must be carried upon an equality.

5. **Public Duty of Carriers.**—Independent of all legislation, the question is complicated by considerations growing out of the public duty of the companies as carriers. As railroad men well understand, they are not at liberty "to pick and choose" passengers, but are bound to carry those who apply, if willing to pay fare and obey rules, with some very limited exceptions of persons diseased, insane, intoxicated, etc. The extent of these exceptions was discussed in an article in the *Railroad Gazette* of June 25, 1881, entitled "Objectionable Passengers." During recent years, while the law of 1875 has been supposed to secure the equality of colored passengers, little has been decided as to what would be their rights if unaided by statute and left to the general doctrine of the companies' duty to carry impartially. But the current of opinion is decided and strong that they may demand to be carried, and to

be carried in equal comfort with whites, paying the same fare; while the right of the companies to separate the races in different cars, provided the accommodations are equally good cannot be said to be settled. Two decisions in California in 1868, when the prejudice against color was strong enough in San Francisco to induce the street car company to run separate cars for negroes, indicate that a regulation requiring them to wait for a later train or car would not be supported by the courts; but they have a right to travel as early in the day as any one. Three decisions in Maryland indicate that refusal of a railroad company to carry a colored person on account of color is ground of action for substantial damages in the state courts, independent of any civil rights law of Congress. A decision in Georgia and one in Ohio say that separate cabins in a steamboat and separate cars on a train are permissible, if equally good; but in the Ohio case the jury awarded the dusky plaintiff \$1,000 damages for the trainmen's refusal to admit her to the ladies' car when there was no other but the smoking car open to her. Illinois and Iowa decisions indicate that if a car is set apart for ladies and gentlemen accompanying ladies "colored ladies" cannot be sent to the ordinary cars. Thus, upon the whole, the managers have a good deal to consider when called to decide upon the arrangements for colored passengers.

SEPTEMBER EARNINGS.

Our table of railroad earnings in September has reports from 80 railroads, which this year worked 59,008 miles, and nearly half the total mileage in the United States (besides about 4,000 miles in Canada). The miles worked were 5,169 (9½ per cent.) more than last year. The gross earnings were \$88,402,328, which is \$2,671,195 (7½ per cent.) more than last year, and the average earnings per mile decreased from \$664 to \$625, or 2 per cent., in this following the general course of earnings this year, in every month of which, except March, there has been some decrease in average earnings per mile, varying from 4 per cent. in February and 3 per cent. in July, to 0.2 per cent. in September.

In September but 17 of the 80 roads had a decrease in total earnings, but 34 had a decrease in earnings per mile. The very large increases are less common than they have been in some months. Only 11 roads gained as much as 20 per cent. in earnings per mile, and these were mostly roads which still have light earnings. The Chicago & Grand Trunk, which gained 27½ per cent., is the only one of them which had as much as the average earnings per mile. There were eight roads which had a decrease of more than 15 per cent. in average earnings per mile, and of these two, the Marquette & Ontonagon and the Manitoba, had more than the average earnings per mile last year. The decrease on the Manitoba, however, was much less than it had been for several months previous.

We have for September the earnings of the Baltimore & Ohio, which is very valuable in judging of the course of trunk line business. Without increase of road it gained 8.2 per cent. in earnings, which is better than the Pennsylvania did, its increase of 4.9 per cent. having been made with an increase of 4½ per cent. in mileage. The Grand Trunk gained 3.1 per cent. without addition of road. These gains in a month when trunk line traffic was excellent last year indicate a heavy business. Western roads which carry much trunk line traffic have not generally done as well and two of them show losses; but the great Wabash system gained 3.2 per cent. (though with 2.8 per cent. more road), the Indiana, Bloomington & Western, 7.2; the Ohio & Mississippi, 6.8, and the Chicago & Grand Trunk, 27.6 per cent.

We have in the table four railroads northwest of St. Paul, three of which are new lines with a great gain in mileage this year. These roads together compare as follows with last year:

	1883.	1882.	Inc. or Dec.	P. c.
Miles.....	5,856	3,542	+ 2,314	65.4
Total earnings.	\$2,608,607	\$2,000,085	+\$608,522	30.3
Earn. per mile.	445	565	- 120	21.2

Of these roads the Canadian Pacific gained 95 per cent. in mileage and 78 per cent. in earnings; the Northern Pacific 82 per cent. in mileage and 56 per cent. in earnings; the Manitoba gained 27½ per cent. in mileage, yet lost 6½ per cent. in earnings; the St. Paul & Duluth, with a slight increase in road, increased its earnings 9½ per cent. The three roads first named are among the newest in the country, and the additions to them are enormous. Though so new, and with earnings reduced this year by the great increase in mileage in new country, only the Canadian Pacific can be said to have positively light earnings (\$253 per mile this year), the \$512 of the Northern Pacific and the \$576 of the Manitoba being more than the earnings of some much older and some

dividend-paying roads—of the Milwaukee & St. Paul, the Iowa lines of the Illinois Central, the Wabash.

Northwest and southwest of Chicago, as far east as the Illinois lines of the Chicago & Alton, as far south as the same company's Missouri line, and as far west as the Missouri River, we have reports from 12 other roads, whose aggregates are as follows:

	1883.	1882.	Inc. or Dec.	P. c.
Miles.....	13,002	12,004	+ 998	8.3
Total earnings.....	\$7,336,713	\$7,054,125	+\$282,588	4.0
Earn. per mile.....	564	588	- 24	4.1

Compared with their great increase in mileage, these roads made a trifling increase in earnings, and the decrease in earnings per mile is considerable. Indeed, there is only one road, the Milwaukee & St. Paul, which had a really large increase in earnings, \$270,290, while the other eleven roads, with 7,624 miles of road and an increase of 828 miles (10½ per cent.) over last year, gained in the aggregate but \$12,298. Indeed, five of these roads, two of which had some increase in mileage, earned less this year than last. September is the month when the grain of the Northwest, even as far north as Minnesota and Dakota, usually is coming forward rapidly. On most of these roads the grain crops were larger this year than last; but the earnings do not show it.

West and southwest of St. Louis the 11 roads reporting show the following aggregates:

	1883.	1882.	Increase.	P. c.
Miles.....	7,771	7,198	573	8.0
Total earnings.....	\$4,158,022	\$3,743,649	\$414,373	11.1
Earn. per mile.....	535	520	15	3.0

Nearly three-fourths of the mileage here is in the Missouri Pacific system, but the percentage of increase on the other roads is the same as on that. All the roads in this district except the International & Great Northern and the Houston, East & West Texas have an increase in earnings. In the aggregate we see that with a large increase in mileage there is an increase in earnings per mile, instead of a decrease as in the Northwest. Crops in Arkansas and Texas are not nearly so good this year as last, but this probably was not very much felt in September, and a very large part of the road is supported chiefly by the traffic of Missouri and Kansas, where crops were good both years, but whence very little corn could be shipped at this time last year because of the failure of the crops of 1881.

West of both these groups in the grazing and mining country, and on the Pacific coast, the chief railroads are the Atchison, Topeka & Santa Fe, the Union Pacific, the Denver & Rio Grande and the Central Pacific. The two former have not yet reported for September. The Denver & Rio Grande, with an increase of 43½ per cent. in mileage, made a gain of 20½ per cent. in earnings; the Central Pacific, with a decrease of 3.2 per cent. in mileage, lost 7.4 per cent. in earnings. Their course is similar to what that of the Union Pacific has been of late months.

East of Chicago, St. Louis and the Mississippi, north of the Ohio, and west of Pennsylvania (but including the Wabash lines west of the Mississippi), we have reports from 19 roads with the following aggregates:

	1883.	1882.	Increase.	P. c.
Miles.....	9,145	8,955	190	2.1
Total earnings.....	\$4,951,973	\$4,737,032	\$214,941	4.5
Earn. per mile.....	541	529	12	2.3

These roads for a long time made an unfavorable comparison with last year. In September we see that they made an increase in earnings per mile as well as in total earnings. Five of the 19 had a decrease in total earnings. Two of the roads that have not heretofore reported regularly are connections of a trunk line, and carry a large amount of through traffic—the Cincinnati, Washington & Baltimore and the Ohio & Mississippi. The largest gains are by the Chicago & Grand Trunk, the Illinois Central and the Ohio & Mississippi. The only considerable losses are on the Ohio Central and the Chicago & Eastern Illinois. As a whole, the returns are encouraging, more because of a favorable comparison with previous months of this year than because of the moderate gains over last year. But then it must be borne in mind that several roads in this district, which have reported heretofore, did not report for September.

South of the Ohio and the Potomac we have 22 roads reporting, in the aggregate as follows:

	1883.	1882.	Increase.	P. c.
Miles.....	10,132	9,741	391	4.0
Total earnings.....	\$4,724,090	\$4,115,473	\$608,617	14.8
Earn. per mile.....	467	422	45	10.7

As heretofore this year, these Southern roads show a great improvement. There is but one that has not made some increase in earnings—the Cincinnati Southern, which still has, however, larger earnings per mile than any other Southern road reporting. Of the other lines parallel with the Mississippi, the Southern Division of the Illinois Central gained 18 per cent., the Mobile & Ohio 16½ per cent., and the Louisville & Nashville 17 per cent. In the other direction we see the Memphis & Charleston gaining 26 per cent., the East Tennessee 20 per cent. (but with an increase of 22 per cent. in mileage) the Norfolk & Western 17½ per cent. (about the same

as in mileage), and the Chesapeake & Ohio 7 per cent. The Richmond & Danville system east of the mountains gained 10 per cent., the South Carolina 9½ per cent. A very good condition of things is shown, less affected by the smaller cotton crop this year than might have been supposed, which indicates that the South has profited so much by good years in the past that a considerable decrease in its leading crop will not materially reduce its consumption or travel.

Nine railroads east of Ohio and north of the Potomac report, including three trunk lines. The New York & New England, which has usually reported before this time, is wanting in the September table, and the only New England road in it is the Eastern. On the other hand we have the Baltimore & Ohio, which does not usually report. The Eastern reports a trifling decrease, and the Northern Central a small one; the others show increases, but not very large ones.

The aggregates are:

	1883.	1882.	Increase.	P. c.
Miles.....	8,435	8,138	297	3.6
Total earnings.....	\$11,590,723	\$10,988,124	\$602,599	5.5
Earn. per mile.....	1,374	1,350	24	1.8

In this comparison we have omitted from the Reading's earnings those which were made on its leased Central New Jersey line, because these are not reported for last year. The Reading's gain on its own road is about 7 per cent. On the whole these Eastern roads show some improvement.

We have now gone over the different groups of roads. We find in the new Northwest, beyond St. Paul, a large decrease in earnings per mile, truly, but only what could be expected in a system whose mileage increased two-thirds, and all in new country, in a single year. The other roads west of Chicago make an unfavorable showing, the increase in earnings being but 4 per cent., against an increase of 8½ per cent. in mileage, and several roads with a considerable increase in mileage have little or no increase in earnings (Burlington, Cedar Rapids & Northwestern, Central Iowa, Chicago & Northwestern, St. Paul & Omaha). The Southwestern roads, which heretofore have shown large gains, made a considerable one in September, and with 8 per cent. more road gained 3 per cent. in earnings per mile. They, however, begin to show signs of a falling off in Texas, where the cotton crop is very short, which will probably be felt more later. Only two of the roads of the Far West report, and these show as heretofore a considerable decrease in earnings per mile. The large group of lines north of the Ohio make a better showing than in previous months, gaining 2½ per cent. in earnings per mile, while heretofore they have lost usually. The Southern roads east of the Mississippi make a magnificent showing, having gained 10½ per cent. in earnings per mile, and all but one making a gain. The Eastern roads that report made a small gain on the average.

An unfavorable feature is the number of roads which have reported monthly heretofore, but did not report for September. Doubtless some of these will report later, but delay in reporting is not a good sign. No less than eleven companies that reported for August, having in the aggregate 7,995 miles of road, do not appear in the September list; while but four companies, with 2,500 miles of road, reported in September that did not report in August in time for our table, two of which had reported regularly previously. The roads reporting in August but not in September are:

N. Y. & New England.	Evansville & Terre Haute.
N. Y. Susq. & West.	Kansas City, Ft. S. & Gulf.
Buffalo, N. Y. & Pa.	Vicksburg & Shreveport.
Toledo, Cin. & St. L.	Union Pacific.
Chicago & W. Mich.	Utah Central.
Cin., Ind., St. L. & Chic.	

Those reporting for September, but not for August, are the Rochester & Pittsburgh, the Baltimore & Ohio, the Scioto Valley and the Gulf, Colorado & Santa Fe.

Below we give our usual table of earnings per mile for seven successive years:

	1877.	1878.	1879.	1880.	1881.	1882.	1883.
Ala. Great South.....	\$138	\$214	\$242	\$268	\$328		
Baltimore & Ohio.....	1,052	1,086	1,105	1,195			
Bur. Ced. Rapids & N.....	471	326	357	365	393	405	365
Central Iowa.....	455	372	404	474	389	288	
Central Pac. & Pa.....	776	821	706	802	778	805	769
Charlotte, Col. & Aug.....	250	280	278	233	209	207	
Chesapeake & O.....	515	509	508	568	643	688	
Chicago & Alton.....	709	654	749	913	922	1,074	1,062
Chic. & East Ill.....	437	456	579	589	686	683	617
Chicago & N. W.....	839	689	779	783	793	756	681
Chic., Mil. & St. P.....	835	400	407	404	433	445	488
Chic.-St. P., Minn. & Om.....		375	367	380	502	425	
Cleve., Akron & Col.....	246	219	256	267	270	349	370
Denver & Rio Gd.....	264	337	335	741	612	513	431
Des Moines & Ft. Dodge.....		280	390	566	227	291	
Det., Lansg. & N.....		601	539	542	617	675	
Eastern.....		932	1,084	1,147	1,207	1,197	
E. Tenn., V. & Ga.....	314		314	329	355	351	
Flint & Pere Marquette.....		383	459	488	540	590	
Gulf, Col. & S. F.....			321	462	453	426	
Hannibal & St. Jo.....	690	791	605	799	736	847	896
Houston, E. & W. Tex.....			127	171	335	215	

	1877.	1878.	1879.	1880.	1881.	1882.	1883.
Ill. Cen. in Ill.....	825	606	682	685	704	713	746
Ill. Cen. in Iowa.....	521	326	382	443	454	481	408
Ind. Bloom. & W.....	350	555	577	455	447	393	422
Int. & Great Nor.....	264	302	340	371	445	505	398
Lake Erie & West.....			221	303	322	304	384
Louisv. & Nashv.....	537	420	477	506	517	550	632
Marq., H. & Ontonagon.....				1,183	1,531	1,502	1,265
Mo., Kan. & Tex.....	346	373	427	424	548	406	595
Mobile & Ohio.....	269	181	319	364	416	290	349
Missouri Pacific.....				584	781	805	922
Nash., Chat. & St. L.....	451	354	347	399	517	353	357
Norfolk & West.....	433	350	414	489	517	544	543
Northern Central.....	1,159	1,098	1,309	1,424	1,318	1,732	1,805
Northern Pacific.....			421	458	550	596	512
Pennsylvania.....	1,688	1,600	1,782	1,940	1,940	2,231	2,230
Peoria, Dec. & Ev.....			225	283	258	258	286
Phila. & Reading.....	1,006	843	1,558	2,470	1,954	2,031	
Richmond & Dan.....	348	340	404	430	432	450	478
St. L., A. & T. H., Main Line.....			586	701	667	672	647
St. L., A. & T. H., Belleville Line.....	706	855	778	550	549	692	658
St. Louis & Cairo.....	146	135	197	262	230	237	252
St. L. & San Fran.....	412	351	442	470	433	510	502
St. L., Iron Mt. & So.....	612	599	803	980	1,034	911	851
St. P. & Duluth.....	428	311	508	311	372	613	627
St. P., Min. & Man.....			501	418	561	786	570
Scioto Valley.....	176	292	281	317	412	427	482
South Carolina.....	319	444	463	570	476	499	538
Texas & Pacific.....	448	405	541	523	393	336	356
Wab., St. L. & P.....				565	488	491	403
West Jersey.....	450	390	436		631	567	590

Of these roads no less than 15, the Alabama Great Southern, the Baltimore & Ohio, the Chesapeake & Ohio, the Cleveland, Akron & Columbus, the Detroit, Lansing & Northern, the Flint & Pere Marquette, the Hannibal & St. Joseph, the Illinois Central in Illinois, the Louisville & Nashville, the Missouri Pacific, the Pennsylvania, the Peoria, Decatur & Evansville, the Richmond & Danville, the St. Paul & Duluth, and the Scioto Valley, had larger earnings per mile this year than in any other in the table, while only three, the Central Iowa, the Charlotte, Columbia & Augusta, and the Chicago & Northwestern, had smaller earnings per mile than in any other September reported since 1876. It is a very favorable position to have made steady gains throughout the past seven years, for these include a period which was most favorable for heavy traffic and earnings.

The Boston & Albany in 1882-3.

The Boston & Albany report for the year ending Sept. 30 has already been made to the Massachusetts Railroad Commissioners and its chief contents published in the newspapers, and it must be said that the value of the report is considerably enhanced by its early publication.

In one sense the Boston & Albany may be looked upon as the continuation of the New York Central to Boston—as the Boston outlet of a great trunk line. The likeness of the two lines is further increased by the nature of their local traffic, Central New York being full of important manufacturing industries, as is Massachusetts. Nevertheless the course of traffic and earnings has not been the same on both roads. Thus the freight traffic of the New York Central from 1876 to 1882 was, in millions of ton-miles:

	1876.	1877.	1878.	1879.	1880.	1881.	1882.
	1,074	1,620	2,043	2,296	2,525	2,647	2,305

and meanwhile on the Boston & Albany it was:

	1876.	1877.	1878.	1879.	1880.	1881.	1882.
	302	314	330	325	375	417	374

While the New York Central suffered a decrease of 9 per cent. from 1876 to 1877, the Boston & Albany had an increase of 4 per cent.; the gain from 1877 to 1878 was 25 per cent. on the Central, and but 5 per cent. on the Boston & Albany; from 1877 (the year when traffic was most unfavorable on most roads) to 1881, the year of heaviest traffic, the New York Central gained 56 per cent. in freight traffic, the Boston & Albany but 33 per cent. The decrease from 1881 to 1882 was similar on both, however—10.3 per cent. on the Boston & Albany and 9.5 per cent. on the Central.

So far as through freight is concerned, we should expect the Boston & Albany to have lost more in proportion than the New York Central. The Erie and the Pennsylvania have of late years largely increased their New England traffic, diverting it from the New York Central and the Boston & Albany alike, doubtless; but as this is the whole of the Boston & Albany through business and not half of the New York Central's, the percentage of the through traffic diverted has been less from the latter than the former; and there has been, at least down to 1882, no such diversion of New York traffic.

But while the growth of freight traffic has been most rapid on the New York Central, the contrary is true of the passenger traffic, which from 1877 to 1882 increased from 103 to 151 millions of passenger miles (46½ per cent.) over the Boston & Albany, and from 317 to 432 millions (37 per cent.) over the Central.

The course of freight rates, too, has been very different on the two roads, the average per ton per mile falling from 1.21 cents in 1877 to 1.07 in 1882 (11½ per cent.) on the Boston & Albany, and from 1.014 to 0.736 cent (27½ per cent.) on the Central. Thus in this most

important traffic the Boston & Albany has not had to meet anything like the reduction of rates which the Central has suffered.

In passenger rates the decrease has been similar on both roads—from 2.07 to 1.80 cents per mile on the Central, and from 2.34 to 1.99 on the Boston & Albany—13 per cent. and 15 per cent. respectively. We should have expected the larger decrease on the New York Central, whose average passenger rate has been brought down by an immense immigrant traffic, of which the Boston & Albany has little. This should lead us to expect less fluctuation in earnings on the Boston & Albany than on the Central. Gross and net these have been:

	—Boston & Albany.—		—New York Central.—	
	Gross.	Net.	Gross.	Net.
1875-76	\$6,828,117	\$2,145,123	\$25,791,486	\$9,667,314
1876-77	6,472,904	1,860,138	24,389,085	9,442,923
1877-78	6,272,068	1,838,071	26,405,017	10,269,040
1878-79	6,074,155	2,350,330	25,747,558	9,624,485
1879-80	7,175,253	1,926,752	30,318,946	12,457,311
1880-81	7,271,350	1,582,947	29,322,532	9,643,067
1881-82	7,348,276	1,747,285	27,249,797	7,853,823
1882-83	8,103,956	1,945,052		

The fluctuations in expenses on the Boston & Albany have been altogether out of proportion to those in earnings, and probably because in some years there have been great additions to the property, which were charged to expenses. This is one of the roads which is likely, in a good year, to have a very large surplus above what is thought proper to divide, and on this account, probably, the course of its "net earnings" cannot properly be compared with that of the New York Central's. But its gross earnings have not been parallel with the Central's. While the Central gained 8 per cent., the Boston & Albany lost 3 per cent. from 1877 to 1878; both roads gained largely and similarly from 1879 to 1880; but from 1880 to 1882, there was a gain of 2½ per cent. on the Boston & Albany, against a loss of 10 per cent. on the New York Central.

We have said nothing yet of the figures for last year, which we have only for the Boston & Albany. Had we found greater parallelism of the two roads in previous years we might argue that the New York Central has gained about \$2,750,000 gross and \$875,000 net over 1881-82. But the course of the two roads has not been sufficiently alike, especially in net earnings, to give us a right so to judge one by the other. But when we bear in mind that the New York Central's gross and especially its net earnings were brought down in 1882 largely by a reduction of 6 per cent. in the average freight rate, while there was an increase on the Boston & Albany and that the average freight rate on the Boston & Albany in 1883 was not only 12 per cent. more than in 1882, but more than in any other year since 1877, except 1880, we can see how it is possible that the New York Central may have gained more in proportion than the Boston & Albany in 1883, just as it lost more in 1882.

The Boston & Albany we see had larger gross earnings in 1883 than in any other year in its history—13 per cent. more than in 1880, when the New York Central's were largest. Its net earnings were much less than in 1879, when its expenses were exceptionally small, and but a trifle more than in 1880. It is almost impossible that the New York Central's net earnings should have been as large in 1883 as in 1880.

What is most surprising in the Boston & Albany report is that the large gain in gross and net earnings over last year should have been made with so very little increase in traffic—the increase of \$488,000 in freight earnings in spite of a trifling decrease in freight traffic. The figures now at hand do not enable us to ascertain the average passenger rate last year; there was an increase of 4 per cent. in passenger traffic.

It is surprising that there should have been no greater increase in traffic. Other trunk lines have gained largely in freight traffic, according to reports (for these are the first statistics we have), and there has been on the whole much more through freight moved this year than last.

The Boston & Albany's freight traffic in 1883 was nearly the same as in 1880 as well as 1882, and 10½ per cent. less than in 1881. The New York Central in 1882 had 5 per cent. less than in 1880, as well as 9½ per cent. less than in 1881.

It is possible that traffic as a whole did not grow as fast in New England last year as in the country further west; but it is also possible that the Boston & Albany did not then gain so much as its competitors—that the growth of the traffic went more to other roads; and this we suspect to have been the case, though little has been said this year of diversions of this traffic, and much was said in previous years. When we have reports from the New York & New England, the Fitchburg, etc., we shall be better able to judge.

Erie Earnings in July.

The New York, Lake Erie & Western reports earnings and expenses in July, as for previous months since April, including 68 per cent. of the gross earnings of the New York,

Pennsylvania & Ohio under its gross earnings, and the whole of its expenses under working expenses, so that the net earnings reported are really the net earnings after paying the rental (32 per cent. of gross earnings) of the leased line.

This comparison, made with the gross and net earnings of the Erie alone last year, shows an increase of \$261,196 in gross earnings, an increase of \$371,691 in working expenses, and a decrease of \$110,408 in net earnings. This comparison is misleading, however, as the things compared are unlike. Below we give the earnings for years previous to this as they are given in the Erie report for this year—that is, we have added 68 per cent. of the New York, Pennsylvania & Ohio gross earnings to the gross earnings of the Erie for these years, and subtracted the aggregate working expenses of the two roads from the amount thus found, to obtain what is equivalent to what the Erie now reports as net earnings:

	1878	1879	1880	1881	1882
Gross earnings	\$1,366,580	\$1,073,809	\$292,771		
Working expenses	1,518,362	1,249,251	209,111		
Net earnings	1,875,334	1,310,754	594,580		
	2,080,019	1,427,087	674,932		
	2,104,337	1,417,900	742,423		
	2,111,456	1,494,683	616,773		

Thus the receipts were about \$53,000 less this year than last, the working expenses \$77,000 greater, and the net earnings after paying 68 per cent. of the New York, Pennsylvania & Ohio earnings as rental were \$130,000 less this year than last and \$36,000 less than in 1881.

The Erie, however, did not have this rental to pay until this year, and what it reports as net earnings this year is what is available for all purposes for which the total net earnings could be used in previous years. These (net earnings of the Erie proper) have been:

	1878	1879	1880	1881	1882
Net earnings	\$326,700	\$315,850	\$500,317	\$672,407	\$727,271

Thus in every year except last year the terms of the present lease of the New York, Pennsylvania & Ohio would have resulted in a loss, the net earnings of the Erie alone having been greater than those of the two roads less the rental of the New York, Pennsylvania & Ohio. This latter this year is \$616,773, and \$110,000 less than the net earnings of the Erie alone last year, and \$56,000 less than they were in 1881.

The first table enables us best to compare the course of the earnings and expenses of the two companies, but the second one shows correctly the Erie's revenue available to pay interest, dividends and fixed rentals, such rentals as are percentages of gross earnings having been deducted already.

For the ten months of the company's fiscal year ending with July the Erie's net earnings have been:

	1877-78	1878-79	1879-80	1880-81	1881-82	1882-83
Net earnings	\$3,958,616	\$3,613,985	\$5,641,877	\$6,200,321	\$5,328,324	\$5,220,187

This year the figures include the net earnings of the New York, Pennsylvania & Ohio less the rental paid for that road for the three months from May to July. The difference was probably a minus quantity, but whether minus or plus it could not have been a large amount, and, large or small, the figures still represent what the Erie's income has been available for the same purposes as its net earnings last year. We see that the amount is the smallest for four years—\$108,000 less than last year, \$980,000 less than in 1881, and \$421,000 less than in 1880.

The two months of the fiscal year that remain to be reported upon were exceptionally favorable months for all the trunk lines last year, but reports from the Baltimore & Ohio and the Pennsylvania show that these roads did even better this year, and there was perhaps comparatively a greater activity in through freight on the Erie in these months than on any other trunk line, and probably a very considerable increase over last year on the leased road.

It is not probable, however, that these two months will cause the net earnings of the year to be greater than those of last year, when in these two months they were \$1,559,357, or about equal to the average earnings of three months earlier in the year. To equal them the company must have earned net \$1,667,494 in August and September last, which is much more than it has ever earned heretofore in any two months.

Pennsylvania Railroad Earnings and Expenses in September.

The earnings of the Pennsylvania Railroad Company's lines east of Pittsburgh and Erie, which in August last were larger than in any previous month of any year, continued very large in September—larger than in any previous month except August of this year and August and October of last year. Last year the decrease from August to September was \$253,576, this year but \$140,381; and the earnings per day this year were \$154,500 in September, against \$154,045 in August—substantially the same, so that last September can be counted with the times of the very heaviest traffic. This was indicated by the statistics of east-bound shipments from Chicago, but not by some other conditions affecting trade. Last year there was an immense crop of winter wheat situated either directly on the lines which feed the Pennsylvania or so as to be largely carried by them; this year this crop is very light on these lines. The condition of the iron business has been such that a falling off of this traffic, very important on the Pennsylvania's lines, has been apprehended; but the movement and production evidently have continued very large, though the profit to the manufacturers may have been very small.

The gross and net earnings and working expenses of the

Pennsylvania's lines east of Pittsburgh and Erie this year and last have been:

	1883	1882	Increase.	P.c.
Gross earnings	\$4,634,999	\$4,417,603	\$217,396	4.9
Expenses	2,712,635	2,683,178	29,457	1.2
Net earnings	\$1,922,364	\$1,734,425	\$187,939	10.8

The large gain in net earnings is due to a small increase in gross earnings without a corresponding increase in expenses, which were very large last year in September—larger than they had ever been before. They are very large this year also, exceeded only in March and June of this year.

For eleven successive years the gross and net earnings and expenses of these lines in the month of September have been:

Pennsylvania Railroad Earnings and Expenses in September.

Year.	Gross Earnings.	Expenses.	Net Earnings.
1873	\$4,634,999	\$2,105,096	\$1,844,100
1874	3,252,228	2,039,810	1,212,418
1875	3,571,057	1,807,504	1,673,553
1876	3,869,994	1,649,320	2,220,674
1877	3,006,408	1,471,091	1,535,317
1878	2,838,646	1,436,451	1,402,195
1879	3,336,529	1,745,891	1,590,638
1880	3,647,543	2,172,634	1,474,909
1881	3,735,006	2,271,829	1,463,177
1882	4,417,602	2,683,176	1,734,426
1883	4,634,999	2,712,635	1,922,364

Thus the comparison with last year does not fairly show how very large the earnings were this year. The increase in gross earnings over last year has been but \$217,396 (5 per cent.), but compared with 1881 the increase is \$900,007 (24 per cent.) and compared with 1878 it is \$1,559,000 (54 per cent.). It is true that the working expenses have increased enormously meanwhile also—\$1,256,000 (86 per cent.) over 1878 and \$540,806 (25 per cent.) over 1881, so that the increase in net earnings has been comparatively moderate—\$520,000 (37 per cent.) over 1878 and \$459,000 (31 per cent.) over 1881, while they are \$298,000 less than in 1876, when September was the month of the heaviest Centennial travel. It is, however, noticeable that the chief part of the increase of net earnings since traffic began to revive in 1879 has been made in the last two years. From 1878 to 1881, while the increase in gross earnings was \$876,000, that in net earnings was only \$61,000; from 1881 to 1883 of the \$900,000 increase of gross earnings \$459,000 has been profit. It seems, then, that the recent additions to the traffic have not cost so much to carry as the earlier ones.

The surplus over all liabilities of the Pennsylvania's system west of Pittsburgh and Erie was \$318,522 last September, which is a larger amount than was to be expected in view of the light winter wheat crop. For five successive years the surplus of this system in September has been:

1879	1880	1881	1882	1883
\$315,688	\$206,982	\$214,113	\$445,870	\$318,522

The decrease from last year is but a trifle in amount, and the surplus this year is above the average of the five years. The country covered by this system has had an immense growth in manufacturing industries in these five years, so that their agricultural traffic is a much less proportion of the whole now than in 1879 and 1880 and before; yet as they include leading outlets of all the great Northwestern markets, this traffic is still of great importance to them. It was as large last September as in almost any other year, probably, but divided among more lines.

Altogether the September traffic of this company's vast system of roads was extremely favorable and more so than we should have expected—more so, we imagine, than that of some other trunk-line systems.

For the nine months of the fiscal year ending with September, the gross and net earnings and working expenses of the lines east of Pittsburgh and Erie have been, for seven successive years:

Pennsylvania Railroad Earnings and Expenses for Nine Months.

Year.	Gross earnings.	Expenses.	Net earnings.
1877	\$22,006,256	\$14,088,741	\$7,917,515
1878	22,819,918	13,534,111	9,285,807
1879	24,516,214	14,823,166	9,693,108
1880	30,254,617	17,857,112	12,426,305
1881	32,878,246	19,482,636	13,395,610
1882	35,887,786	22,283,280	13,604,506
1883	37,892,916	23,816,564	14,076,352

Compared with last year the increases are:

\$2,005,130, or 5.6 per cent., in gross earnings;
1,533,084, or 6.9 per cent., in working expenses;
472,046, or 3.5 per cent., in net earnings.

More than three-fourths of the \$2,000,000 increase in earnings is absorbed by the increase in expenses, and the increase in net earnings, though considerable in amount, is but a small percentage. Two-fifths of this increase in net earnings, however, was made in the single month of September and nearly a quarter of it in August. That is, at the end of July the increase in net earnings for the year was but \$174,345, and in the two months since it has grown \$297,701, notwithstanding the fact that these two months last year were among the most profitable in the history of the company. To do as well as last year after July would have been doing very well, but so far the company has made the greatest improvement in precisely those months when it was hardest to improve, in spite of lighter crops (though the greater movement of corn this year may have counterbalanced the lighter movement of wheat), and a greater diversion of business by the new roads to Chicago, and, as was generally supposed, a less active condition of trade and industry, which however these figures, which are very significant, indicate to have been more active (not necessarily profitable or healthy) than was supposed.

The increase in gross earnings of \$2,000,000 over last year is the smallest for four years. The increase in gross

and net earnings and expenses from year to year since traffic began to grow rapidly has been:

	Gross earnings.	Expenses.	Net earnings.
From 1878 to 1879....	\$1,696,296	\$1,288,995	\$407,301
" 1879 to 1880....	5,737,403	3,004,206	2,733,197
" 1880 to 1881....	4,624,629	1,655,124	2,969,505
" 1881 to 1882....	3,009,540	2,800,844	208,696
" 1882 to 1883....	2,005,130	1,533,084	472,046

Even from 1878 to 1879, though the amount of increase in gross earnings was even less than from 1882 to 1883, the percentage of increase was $7\frac{1}{2}$ per cent., against $5\frac{1}{2}$ this year; the astonishing increase of 23 per cent. in 1880 corresponded with the great revival of railroad construction and the iron and coal mining industry, from which the Pennsylvania profited more than any other railroad system. After such an enormous increase, amounting since 1879 to \$13,376,000 (55 per cent.) in gross and \$4,383,000 (45 per cent.) in net earnings, the company will do very well to hold its own. Certainly it cannot be expected that there will be such growth in the four years to come as there has been in the four past years, and the decreasing rate of growth since 1880 is likely to continue—that is, should there be any growth. The decrease in the rate (gross earnings) will be more evident by the percentages than by the amounts above. In successive years since 1879 these percentages have been: 23, 8.7, 9.1, 5.6. It is, however, probable that if earnings do not increase so rapidly hereafter as heretofore neither will expenses.

The surplus over all liabilities of the Pennsylvania lines west of Pittsburgh and Erie for the nine months ending with September for five years have been:

	1879.	1880.	1881.	1882.	1883.
\$108,834	\$2,086,231	\$2,268,783	\$1,067,772	\$875,702	

The decrease in this surplus compared with last year is \$192,070, which makes the Pennsylvania's profit from the two systems only \$279,976 more than last year, \$60,591 of which was made in September, when the decrease of \$127,348 in the surplus of the Western system lacked that amount of balancing the increase of \$187,187 in the net earnings of the Eastern system. The sum of the net earnings of the Eastern system and the surplus of the Western system for the nine months ending with September for five years have been:

	1879.	1880.	1881.	1882.	1883.
\$9,801,942	\$14,512,536	\$15,664,593	\$14,672,278	\$14,952,254	

Here account is taken of the changes in the fixed charges of the Western system, but not of the Eastern system, the figures giving the profits of the Pennsylvania Railroad Company (available for the fixed charges and dividends of that company) from the two systems. These are not all its profits, as it has enormous investments in other lines not included in either of these systems—notably in the Northern Central and the Philadelphia, Wilmington & Baltimore.

It appears from the above that the profits of these two great systems were \$712,000 less this year than in 1881, \$440,000 more than in 1880 and \$280,000 more than last year. For a company with its enormous capital these differences are almost insignificant, but the increase of \$5,250,000 since 1879 is something different. In counting the effect on dividends, it must be remembered that there has been a great increase in the capital stock in these years, though but a slight one in funded debt. The stock has been:

	1880.	1881.	1882.	1883.
\$68,870,200	\$77,672,750	\$85,301,300	\$90,419,378	

To pay eight per cent. on this stock requires \$7,233,550 now (not for the year 1883, as the increase was made after paying a half year's dividend), against \$6,824,104 last year, \$6,212,820 in 1881, and \$5,509,616. It is evident that the increase in profits has not nearly kept pace with the increase in share capital, but against this it should be remembered that there has been a surplus after paying dividends in previous years, amounting 2, 3, and more per cent. on the stock.

Station Posters and Time-Tables.

II.

Last week we gave some account of defects and obscurities more or less common in the time-tables posted at stations, which sometimes lead the inexperienced traveler astray, and oftener, doubtless, compel the ticket-seller to explain by word of mouth to many anxious inquirers what ought to have been and could have been made perfectly plain to them by the printed sheet. We then proposed an examination of these posters for the purpose of ascertaining their good points, and learning whether by putting them together and avoiding the bad features we might not make something easily intelligible to the traveler.

To begin at the starting point, the caption itself is not unworthy of notice, there being much more room for variety in this particular than would at first appear. A fashion which is quite common is to have no heading at all; but leaving this aside, we may say, after giving the name of the road, "Passenger service," "Trains from Blank to Blank," "X. & Z. Railroad Time-table," "Winter Schedule," "Summer arrangement of trains," "Summer arrangement," "Trains between Blank and Blank," or even "Change of time" (thus rendering the heading a misnomer after its first day), all of these forms being used by a greater or less number of "first-class" roads. But if we pattern after the best compilers and aim to be simple and direct we can hardly fail to decide on the short and plain term "TIME-TABLE." "Time-table of passenger trains" is hardly appropriate for universal use for the reason that mixed trains are often inserted, and the possibility of some innocent persons acting on the assumption that freight trains are included can do no possible harm.

In view of the possibility that a change may not be made every season, the prefixes "Summer" and "Winter" would better be omitted.

The explanations, notes, etc., all of them, should come next to the heading, and be arranged in a printing office which can afford to put a first-class compositor on to the work. Half of the usefulness of such matter as this depends upon the judgment and taste of the printer's foreman. When we say all of the notes we mean, of course, all that are essential to a proper understanding of the table. There are, of course, numerous matters such as connections, etc., which it is desirable to show on a poster, but which may be placed in a less conspicuous position for the reason that no confusion or misunderstanding results if the reader chance to overlook them.

Among the things necessary to a clear understanding of most tables are: statement of the standard time; date on which the table goes into effect; a map of the road accompanied by small maps on a large scale of the cities and important junctions (these, however, to be only referred to at the head of the table, the maps themselves being shown elsewhere); explanation of the letters, marks, etc., in the body of the table; and, perhaps, the arrangement of through cars, dining cars, etc., though these may, if they occupy much room, be simply referred to (as "to be found on page —"), the idea being to have the principal features of the table appear near the title. Where it is found necessary to omit any train from a table, or to divide a table which ought to be shown as a unit, the statement of the fact should be one of the most prominent notes at the head of the table.

The best posters now-a-days have a separate table for each line and branch, not attempting to show the up trains and down trains, outward branch and inward branch trains and what not in one compact mass; and we of course want to take "the best" for our model. There are, unfortunately, many tables of first-class roads which would have to be cleared of much superfluous matter of this kind before they could be held up as examples.

Having divided the road properly, the first essential in the table itself is a complete list of stations. Quite a share of the inquiries addressed to ticket-sellers refers to flag stations or other points in regard to which the table is silent. This column should show either in plain language or by foot note references the old names of stations of which the name has been changed, and the names of villages and towns which are served by stations whose names are not identical with their own. Hardly a road but has stations bearing names entirely different from the post office or familiar name of the place, and these awkward arrangements are the cause of much annoyance to strangers; some of it petty and some not so trifling, as when some ignorant foreigner is carried a dozen miles beyond his destination on the last train Saturday night.

The time-table proper should not show prominent points (or any other points) beyond or off the division for which the table is made, or at least should show them in different type and in a different color, if at all. The motive for inserting branch stations in the main line table is often, doubtless, to convey a more or less distinct impression that such places are as easily and quickly reached as though they were located on the main line, but this only shows us an additional reason for omitting them.

The distance of each station from the chief terminus, and possibly from the division terminus also, should always be shown, though we may in passing suggest the query whether it is not a waste of time to give distances in miles and hundredths. Where stations are very near together some fractions may be necessary, but most passengers want as few of them as possible.

The motive for omitting distances is doubtless in some cases the same as in the case of branch stations just alluded to, viz., a mild deception; but no one, it would seem, could deem it worth while to indulge in it after reflecting on its extreme thinness.

It is doubtless generally agreed that there ought to be a separate list of stations for trains in each direction, so that no columns will have to be "read up," but where it is necessary to use one column for both "up" and "down" trains, the explanation should be prominently shown.

It has been intimated that the omission or partial omission of "a. m." and "p. m." is a source of confusion to the unwary, but probably the answer on all sides will be that it is utterly out of the question to afford the room necessary to distinguish the forenoon from the afternoon against every train at every station. The advocates of the plan of using distinctive type for this purpose would probably say that that plan obviates the necessity of placing letters in the time column; but without referring here to some slight defects of the system, it is enough to say, in view of their own practice and of the fact that some use heavy figures for one portion of the twenty-four hours and others for a different portion, that uniformity cannot be attained so soon without the letters as with them.

And uniformity certainly is, or ought to be, one of the chief objects sought after in the matter under discussion. As in some other departments of railroading, the attainment of perfection is, under some circumstances, to be subordinated for the sake of mitigating the confusion. There is before us an admirable table issued in "folder" form by one of the best Southern lines, and we always experience a sense of relief when examining it, the evidences of the care and painstaking bestowed upon its preparation appearing in every column, and in many different ways. This clear and handsome sheet shows a. m. or p. m. against every time that is specified, and one needs to use it but a short time to see the convenience if not the necessity of the universal adoption of this practice; but as in many tables the widening of every time column would render necessary a considerable enlargement of the sheet and be

a remote agent in producing purchasing agents' nightmare, by reason of the large contracts it would necessitate with the picture-frame makers, why would it not be well to compromise the matter and use the indicating letters against each station for trains where trips extend into both forenoon and afternoon, while adhering to the present practice of placing the letters at the head of the column in the case of trains whose trips begin and end between noon and midnight, or vice versa? Where trains are so numerous that it is necessary to take into account the size of sheet or amount of paper used, it is generally, or perhaps always, true that a large proportion of them make their outward trips wholly in the forenoon and their return trips wholly in the afternoon, in which case, of course, the information as to which portion of the day is meant need be stated but once.

Utilizing one column for two or more trains (as for instance one from A to B and another from X to Z) is perhaps not to be wholly condemned, but there is certainly room for improvement in the way it is done in many cases. The weak point is generally in the inconspicuous subheading, and results of course from the prevalent erroneous belief or impression that the table is to be read only by intelligent people. Where one column is used in this way the end of the first train's trip should be shown by a very heavy dash, and the number or other designation of the second train should be indicated so plainly as to arrest the most careless eye.

The printing of a separate table for Sunday trains is now an excellent feature of the tables of many large roads, and is worthy of imitation in many places where it is apparently an unknown fashion; but where Sunday trains are few and far between (as they ought to be everywhere), the common plan of indicating them by an asterisk or by a small letter "S" is perhaps as simple as any, though instances frequently occur where an explanatory note is required. The difference between starting on Sunday and making the whole trip on that day is frequently lost sight of, and the task of extracting information from the table made correspondingly more intricate. Where a table covers two or more divisions of the same road and shows trains which run six days per week over one portion and seven over another, the exceedingly small star or other mark placed against the station in the middle of the table from which the Sunday trip begins is not enough, and is apt to be overlooked, and that by readers who are not so very dull either.

But without going into all the fine points, which, to be learned, should be acquired by a little judicious exercise in making tables instead of through the medium of a prosy lecture, we may well consider, for the final point at this time, the importance of uniformity. This is a good word to keep on one's mind, and is a relative of that other important word consistency, which is "a jewel." A successful endeavor to keep one's own table consistent with itself is one step toward uniformity; at any rate the latter is impossible without it. We have altogether too many tables in which the same thing is shown in diverse ways on different divisions.

As above hinted, uniformity is the desideratum, and, having decided that the plan here outlined, or some other, is the best attainable, why should it not be agreed upon by all the roads? A recommendation to that effect might be a good work for the various state boards of railroad commissioners. Uniformity is more agreeable and doubtless usually best secured by voluntary agreement of companies; but there is one important point on which the force of law might be necessary, viz., the giving of notice a sufficient time in advance and with systematic regularity. Time should never be changed without giving ample preliminary notice, and the names of all foreign ticket agents, hotels and other places that are usually supplied with posters should be recorded by the issuing road and new tables sent to them as promptly as they are to trainmen. Indeed, a further step will probably be taken before many centuries elapse, and changes will be made only on regular fixed dates, as, for instance, the fifteenth of every month.

Record of New Railroad Construction.

This number of the *Railroad Gazette* contains information of the laying of track on new railroads as follows:

Arizona & New Mexico.—Track laid from Lordsburg, N. M., northwest to a point six miles from Clifton, Arizona, a distance of 64½ miles. Gauge, 3 ft.

Zellaire, Zanesville & Cincinnati.—Extended from Free, dom, O., west 8 miles. Gauge, 3 ft.

California Southern.—Extended from Colton, Cal., north to San Bernardino, 3½ miles.

Chicago, St. Paul, Minneapolis & Omaha.—The Northern Division is extended from Vandewater, Wis., north to Bayfield, 9 miles.

Detroit, Bay City & Alpena.—Track laid from Bristol Mich., west through East Tawas to Riffe River, 32 miles.

Georgia Pacific.—Extended from McComb, Treble, Ala., 11 miles. Gauge, 5 ft.

Illinois Central.—The Yazoo & Mississippi Valley Branch is extended from Flora, Miss., north to Benton, 4 miles.

Kentucky Central.—Extended from Harris, Ky., south to Boone's Gap, 12 miles.

Lanville Valley Extension.—Track laid from Swanton Vt., to Rouses Point, N. Y., 13 miles.

Louisville, New Orleans & Texas.—Extended northwest east to Baton Rouge, La., 13 miles.

Mississippi, Terre aux Boeufs & Lake.—Track laid from New Orleans, La., east to English Bend, 18½ miles.

Nantucket.—Extended from Surfside, Mass., southeast 1 mile. Gauge, 3 ft.

New York, West Shore & Buffalo.—Extended from near Churchville, N. Y., eastward to Clyde, 43 miles.

St. Louis & San Francisco.—Extended into St. Louis, 3 miles.

South Florida.—Track laid from Tampa, Fla., east 6 miles Gauge, 3 ft.

This is a total of 241½ miles of new railroad, making 5,188 miles thus far this year. The total new track reported in our columns to the corresponding date for 12 years past has been as follows:

	Miles.	1877.	Miles.	1882.
1883.	5,188	1877.	1,824	
1882.	5,446	1876.	1,913	
1881.	5,763	1875.	1,080	
1880.	4,614	1874.	1,534	
1879.	2,859	1873.	3,130	
1878.	1,724	1872.	6,106	

The statements include main track only, no account being taken of second tracks or other additional tracks or sidings. The new track reported for this year has now passed over 5,000 miles.

CHICAGO THROUGH RAIL SHIPMENTS EASTWARD for the third week of October, by the complete report, have been, for four successive years:

	1880.	1881.	1882.	1883.
Tons.	44,530	56,304	53,580	43,721

The shipments this year thus have been 30 per cent. more than last year, when rates were the same; 22½ per cent. less than in 1881, when rates were about half as high, and nearly the same as in 1880, when the rates were a fifth higher than now. At this time in 1880 there was a large increase over previous weeks in the shipments—the activity caused by the approach of the close of navigation coming thus early—while there was at no time such an increase in 1881, and it began two weeks later last year. Judging by the rates obtained by lake vessels there is not yet any signs of such an increase this year; and probably with winter rates as low as they have been for two years past there will never be hereafter such a pressure to ship as there used to be during the few weeks previous to the close of navigation.

The percentage of the total shipments going by each road in this third week of October, this year and last, has been:

	1882.	1883.		1882.	1883.
Chl. & Gd. Trunk	12.5	10.0	Ch. St. L. & Pitts.	18.5	5.2
Michigan Central	23.6	21.4	Balt. & Ohio	7.3	7.6
Lake Shore	18.2	13.4	Chl. & Atlantic	9.4	
Port Wayne	18.9	22.3	N. Y., Chic. & St. L.	10.7	

The Chicago & Atlantic has not for a long time before had so small proportion of the freight, and this is true also of the Pan-Handle, which usually carries more from the Erie than from any other road. On the other hand, the Michigan Central has a much larger proportion than usual of late. The three Vanderbilt roads together have 45.5 per cent. of the whole, against the 43½ awarded to them, the excess of 2.7 on the Nickel Plate and 2.05 on the Michigan Central, more than counter-balancing the deficiency of 3.6 on the Lake Shore. The Nickel Plate's business seems to come chiefly from the Lake Shore, and probably the best use it can be put to is to carry through traffic for the latter when business is heavy and through freight may be delayed thereby. For this reason the percentages of such a road are likely to vary greatly, being very small when traffic is light and the through business can be done more economically by the older and better road to which it serves as a tender, and very heavy when the old road is pressed with business.

For seven successive weeks the Chicago shipments have been, in tons:

	Week ending—	Sept. 7.	Sept. 14.	Sept. 21.	Sept. 28.	Oct. 5.	Oct. 12.	Oct. 19.	Oct. 26.
		40,947	40,731	44,296	39,670	43,723	44,926	43,721	

Previous to September the shipments of no week since March had been as much as 40,500 tons. During these seven weeks the shipments have been not only unusually large, but unusually regular, varying comparatively little from week to week, and they have not declined since the decrease in lake rates. It is now almost certain that the shipments of the month of October, like those of September, will be larger than in any previous year except 1881, when the railroads by carrying at half price captured the freight which usually goes by lake. For the first three weeks of October the increase over last year is fully 30 per cent., and though in the third week the shipments were a little less than in 1880, for the three weeks they were 9 per cent. more than in that very prosperous year.

For the week ending Oct. 27 the incomplete report of through and local shipments by these eight roads gives a total of 42,449 tons, against 46,328 in the previous week of this year and 26,027 in the corresponding week of last year. Of the shipments this year 5,781 tons were flour, 27,277 grain and 9,391 provisions. The percentages, it must be remembered, may be very different from those of the pool shipments; but as reported only 4.5 per cent. went by the Chicago & Atlantic and 8 by the Chicago & Grand Trunk; while the Michigan Central carried 24.3, the Lake Shore 15.9, the Nickel Plate 10.8, the Port Wayne 15.9, the Chicago, St. Louis & Pittsburgh 11.6, and the Baltimore & Ohio 9 per cent. of the whole.

THE EVIL OF GIVING PRIZES INSTEAD OF REWARDS is well illustrated in the "autumn manoeuvres" (to adopt an aristocratic term) of the engineers and road-masters of some of the prominent roads in going through with their annual inspection. Very few probably even of the road-masters themselves would claim anything like exact justice in the results of their respective markings as concerns the recognition of the merits of the supervisors who have the immediate oversight of the work judged, and, to one

RAILROAD EARNINGS IN SEPTEMBER.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1883.	1882.	Inc.	Dec.	P. c.	1883.	1882.	Increase.	De-crease.	P. c.	1883.	1882.	Inc.	Dec.	P. c.
Ala. Gt. Southern	290	290				\$ 65,093	\$ 77,793	\$ 17,300		22.2	\$ 228	\$ 268	60		22.2
Baltimore & Ohio	1,592	1,592				1,903,000	1,759,291	143,709		8.2	1,195	1,105	90		8.2
Burr., Ced. Rap. & No.	714	645	69		10.7	260,357	261,439		1,082	0.4	365	405		40	9.9
Canadian Pacific	1,031	988	43		95.4	489,122	274,257	214,865		78.4	253	278		25	9.0
Central Iowa	401	290	111		38.3	115,651	112,824	2,827		2.5	288	389		101	26.0
Central Pacific	3,003	3,101		98	3.2	2,311,000	2,495,445		184,445	7.4	769	805		56	4.4
Ches. & Ohio	517	517				355,797	332,519	23,278		7.1	688	643	45		7.1
Eliz. L. & Big Sa.	130	130				76,883	57,351	19,532		34.2	591	441	150		34.2
Chicago & Alton	850	850				902,955	912,692		9,737	1.1	1,062	1,074		12	1.1
Chi. & Eastern Ill.	252	252				155,537	171,215		16,678	9.7	617	683		66	9.7
Chi. & Grand Trunk	335	335				256,959	201,451	55,508		27.6	767	601	166		27.6
Chi. Mil. & St. Paul	4,550	4,380	170		3.9	2,221,000	1,950,710	270,290		13.8	488	445	43		9.7
Chi. & Northwestern	3,770	3,375	395		11.7	2,567,900	2,553,041	14,859		0.5	681	756		75	9.9
Chi. St. P., M. & O.	1,230	1,040	190		18.3	523,300	522,200	1,100		0.2	425	502		77	15.4
Cin. N. O. & T. & P.	336	330				240,326	243,341		2,915	1.2	715	724		9	1.2
Cin. Wash. & Balt.	284	284				205,842	201,929	3,913		1.9	725	711	14		1.9
Cleve., Akron & Col.	144	144				54,109	50,006	4,103		8.2	376	349	27		8.2
Connorton Valley	140	140		34	32.1	32,712	24,634	8,078		32.8	234	233	1		0.9
Denver & R. Gr.	1,064	1,160	504		43.5	719,500	595,200	124,300		20.7	431	513		82	16.0
Des M. & Ft. Dodge	138	138				40,162	31,293	8,869		28.2	291	227	64		28.2
Det., Lan. & Nor.	226	226				152,632	139,402	13,230		9.5	675	617	58		9.5
Eastern	284	284				340,057	342,636		2,583	0.8	1,197	1,207		10	0.8
E. Tenn., Va. & Ga.	1,098	901	197		21.9	385,085	320,358	64,727		20.2	351	355		4	1.2
Mem. & Charleston	292	292				106,659	84,474	22,185		26.4	365	290	75		26.4
Flint & Pere Mar.	347	347				204,863	187,446	17,417		9.3	590	540	50		9.3
Florida Cen. & West.	234	234				39,395	34,468	4,927		14.3	168	147	21		14.3
Florida Transit & Pen.	243	243				37,695	29,076	8,619		29.7	155	120	35		29.7
G. N. B. Wm. & St. P.	2,321	2,321				1,531,342	1,486,229	45,113		3.1	660	640	20		3.1
Gulf, Col. & S. F.	536	430	106		22.3	238,292	194,658	33,639		1,855	53	150	158		8
Hannibal & St. Jo.	292	292				261,708	247,363	14,345		5.8	896	847	49		5.8
Houston, E. & W. Tex.	135	104	31		29.8	28,968	34,842		5,874	16.8	215	335		120	35.8
Ill. Cen., Ill. lines	928	919	9		0.9	691,883	655,069	36,814		5.6	746	713	33		4.7
Iowa lines	402	402				188,277	193,170		4,893	2.5	468	481		13	2.5
Southern Div.	578	578				335,647	284,074	51,573		18.1	581	491	90		18.1
Ind., Bloom. & West.	685	685				292,965	273,159	19,806		7.2	422	393	29		7.2
Kentucky Central	188	150	38		25.3	92,246	75,509	16,737		22.1	491	503		12	2.4
Lake Erie & West.	389	389				148,374	149,196		8,222	2.5	384	394		10	2.5
Little Rock & Ft. S.	173	168	5		3.0	43,774	43,401	373		0.8	253	258		5	1.9
Little Rk., Miss. R. & T.	173	173				26,906	24,938	1,968		7.9	156	144	12		8.0
Long Island	354	354				280,438	267,706	12,732		4.8	790	758	32		4.8
Louisville & Nash.	2,065	2,028	37		1.8	1,305,200	1,114,512	190,688		17.1	632	550	82		14.9
Marq., Hought. & Ont.	103	97	6		6.2	130,319	151,500		21,181	14.0	1,265	1,562		297	10.0
Mil., L. S. & West.	332	275	57		20.7	92,118	83,012	9,106		10.9	277	302		25	8.3
Mo. Pacific lines:															
Central Branch	388	388				145,176	100,249	44,927		44.8	374	258	116		44.8
Int. & Gt. Northern	825	775	50		6.5	328,131	391,245		63,114	16.0	398	505		107	21.3
Mo., Kan. & Tex.	1,374	1,300	74		5.7	735,385	618,701	116,684		18.9	535	476	59		12.3
Mo. Pacific	1,025	995	30		3.0	944,732	801,416	143,316		17.9	922	805	117		14.6
St. L. I. M. & So.	905	795	110		13.8	770,104	724,160	45,944		6.3	851	911		60	6.6
Texas & Pacific	1,487	1,410	77		5.5	529,968	473,240	56,728		12.0	356	336	20		7.9
Wabash, St. L. & P.	3,520	3,425	95		2.8	1,737,182	1,682,382	54,800		3.2	493	491	2		0.4
Mobile & Ohio	528	528				184,021	157,879	26,142		16.5	349	299	50		16.5
Nash., Chat. & St. L.	554	539	15		2.8	197,798	190,196	7,602		4.0	357	353	4		1.1
Norfolk & Western	503	428	75		17.5	273,171	232,774	40,397		17.3	543	544		1	0.2
Northern Central	322	322				545,727	557,558		11,831	2.1	1,695	1,732		37	2.1
Northern Pacific	2,365	1,300	1,065		81.9	1,210,000	772,838	437,162		56.6	512	506		84	14.1
Ohio Central	284	232	52		22.4	102,691	119,377		16,686	14.0	356	515		159	31.0
Ohio & Mississippi	616	616				497,729	468,229	29,500		6.3	808	760	48		6.3
Ohio Southern	138	138				39,323	38,511	812		3.4	299	279	20		3.4
Pennsylvania	2,070	1,980	90		4.5	4,634,998	4,417,602	217,396		4.9	2,239	2,231	8		0.3
Peo., Dec. & Evansv.	264	254	10		3.8	72,574	65,525	7,049		10.7	286	258	28		10.7
Phia. & Reading	1,560	1,000	560		56.0	3,333,217	2,019,017	1,314,200		65.1	2,137	2,019	118		5.9
Rich. & Danville lines:															
Char. Col. & Aug.	343	327	16		4.9	70,867	68,148	2,719		3.7	297	269		2	0.9
Col. & Greenville	296	296				63,173	61,676			2.6	219	213	6		2.6
Rich. & Danville	757	757				362,282	340,581	21,701		6.4	478	450	28		6.4
Va. Midland	332	332				185,205	182,500	2,705		14.5	528	462	66		14.5
Western N. C.	190	190				46,241	27,172	19,069		70.6	243	143	100		70.6
Rochester & Pitts.	304	108	196		181.5	83,309	32,502	50,807		158.3	274	301		27	8.9
St. L., A. & T. H.:															
Main Line	195	195				126,170	131,053		4,883	3.7	647	672		25	3.7
Bellville Line	121	121				79,572	83,734		4,164	4.9	658	692		34	4.9
St. Louis & Cairo	162	152				38,320	36,040	2,280		6.3	252	237	15		6.3
St. Louis & San Fran.	1,750	680	90		13.6	376,576	326,914	39,772		11.8	512	512		8	2.3
St. Louis & Dubuq.	219	196	23		10.6	136,811	120,231	11,467		11.8	627	615	14		8.1
St. P., Minn. & Man.	750	1,058	298		27.5	777,884	832,776		54,892	6.6	576	787		21	26.8
Scioto Valley	128	128				61,796	54,650	7,086		12.9	482	427	55		12.9
Shenandoah Valley	249	240	9		3.8	91,685	63,714	27,971		43.9	364	265	103		38.9
South Carolina	247	213	4		1.6	132,821	121,359	11,462		9.5	538	499	39		7.8
Vicks. & Meridian	142	142				45,114	34,842	10,272		29.4	318	244	74		29.4
West Jersey	188	177	11		6.2	110,931	105,583	5,348		5.0	590	597		7	1.2
Total, 79 roads.	59,508	53,839	5,827	98	10.6	39,572,620	35,729,133	4,254,202	410,715	10.8	664	663	1		0.0
Total inc. or dec.			5,729					3,843,487							

RAILROAD EARNINGS, NINE MONTHS ENDING SEPTEMBER 30.

NAME OF ROAD.	MILEAGE.					EARNINGS.					EARNINGS PER MILE.				
	1883.	1882.	Inc.	D.	P. c.	1883.	1882.	Increase.	Dec.	P. c.	1883.	1882.	Inc.	Dec.	P. c.
Ala. Gt. Southern	290	290				\$ 732,916	\$ 575,173	\$ 157,743		27.4	\$ 2,527	\$ 1,983	\$ 544		27.4
Bur. Cedar Rap. & No.	714	645	69		10.7	1,069,723	1,070,036		6,313	0.3	2,759	3,004		305	9.9
Canadian Pacific	1,335	583	752		128.9	3,841,462	1,714,656	2,126,806		1940	2,877	2,943		66	2.2
Central Iowa	350	290	60		20.7	914,781	848,112	66,669		7.8	2,614	2,924		310	10.6
Central Pacific	2,972	2,993			0.7	18,172,341	19,078,921	906,580		4.7	6,115	6,375		260	4.1
Ches. & Ohio	517	471	46		9.8	2,869,610	2,429,570	440,040		18.1	5,551	5,158		393	7.6
Eliz. Lex. & B. Sandy	130	130				532,775	362,751	170,024		48.9	4,098	2,790	1,308		46.9
Chi. & Alton	850	850				6,301,206	5,905,839	395,367		6.7	7,413	6,948	465		6.7
Chi. & Eastern Ill.	252	252				1,228,149	1,306,716	78,567		6.0	4,874	5,185		311	6.0
Chi. & Gd. Trunk	335	335				2,119,324	1,541,234	578,090		38.1	6,328	4,601	1,725		38.1
Chi. Mil. & St. Paul	4,529	4,270	259		6.1	16,591,000	14,098,064	2,492,936		17.7	3,683	3,302	381		10.9
Chi. & Northwestern	3,611	3,250	361		11.1	18,020,905	17,459,861	561,044		3.4	4,991	5,366		375	6.9
Chi., St. P., Minn. & O.	1,230	1,023	207		20.3	3,812,021	3,533,394	278,627		7.0	3,099	3,434		335	10.3
Cin. N. O. & Tex. P.	336	336				1,865,891	1,875,110	9,219		0.5	5,551	5,581		30	0.5
Cin. Wash. & Balt.	284	284				1,383,924	1,274,944	108,980		8.6	4,733	4,489	244		5.5
Cleve., Akron & Col.	144	144				399,802	367,609	32,193		8.8	2,776	2,553	223		8.8
Denver & Rio Grande	1,529	1,084	445		41.1	5,380,000	4,769,799	610,201		13.0	3,519	4,394		875	19.9
Des M. & Ft. Dodge	138	90	48		53.3	238,531	255,161	16,630		6.5	1,728	2,835		1,107	39.5
Det., Lan. & No.	226	226				1,108,962	1,173,972	65,010		0.4	5,172	5,195		23	0.4
Eastern	284	284				2,740,789	2,574,127	166,662		6.5	9,651	9,164	487		5.3
East Tenn., Va. & Ga.	1,073	901	172		19.1	2,855,723	2,263,063	592,660		28.0	2,689	2,512	177		7.4
Mem. & Charleston	232	232				862,256	862,256			18.6	2,958	2,485	473		18.6
Flint & Pere Marq.	347	347				1,851,754	1,554,734	297,020		19.1	5,386	4,505	881		19.1
Florida Cen. & West	234	234				300,006	292,587	7,419		2.5	1,282	1,250	32		2.5
Florida Transit & Pen.	243	209	34		16.3	351,372	292,415	58,957		20.2	1,446	1,399	47		3.4
Grand Trunk	2,321	2,236	85		3.7	12,978,047	12,068,925	909,122		7.5	5,592	5,398	194		3.6
Green Bay, Win. & St. P.	220	220				282,171	272,065	10,106		3.7	1,283	1,237	46		3.7
Gulf, Col., & S. F.	506	348	158		45.1	1,428,456	915,369	513,087		56.1	2,823	2,630	193		7.4
Hannibal & St. Jo.	292	292				1,869,834	1,644,363	225,471		13.8	6,404	5,631	773		13.8
Houston, E. & W. T.	123	90	33		36.7	238,993	204,650	34,343		14.2	1,866	2,267		401	17.4
Ill. Cent., Ill. lines	926	910	16		1.7	4,880,695	5,129,008	248,313		4.7	5,280	5,581		301	5.4
Iowa lines	402	402				1,418,915	1,407,717	11,198		0.8	3,329	3,502		173	5.1
Southern Div.	578	578				2,801,407	2,399,665	501,742		21.8	4,847	3,979	868		21.8
Ind., Bloom. & West.	695	602	93		15.5	2,217,807	1,907,700	310,107		16.2	3,191	3,169	22		0.7
Kentucky Central	168	150	18		12.0	323,262	287,025	36,237		12.6	1,329	1,355		26	1.9
Little Rock & Ft. Smith	169	168	1		0.6	357,884	299,368	58,516		19.5	2,118	1,782	336		18.7
Little R., Miss. R. & Tex.	173	157	16		10.2	256,281	180,357	75,924		42.1	1,481	1,148	333		29.0
Long Island	354	346	8		2.3	2,118,159	1,856,587	261,572		8.3	5,984	5,655	329		5.8
Louisville & Nashv.	2,050	2,028	22		1.1	10,056,486	9,930,316	126,170		1.1	4,506	4,453	53		1.2
Mar., Hought. & Ont.	91	91				69,842	96,314	26,472		27.7	7,049	10,608		3,559	53.2
Mil., Lake Sh. & West.	321	275	46		16.7	735,468	631,336	104,132		16.5	2,291	2,296		5	0.2
Mo. Pacific lines:															
Central Branch	388	388				1,056,089	633,913	422,176		66.5	2,722	1,634	1,088		66.5
Int. & Gt. No.	809	775	34		4.4	2,682,105	2,403,478	278,627		10.7	3,291	3,101	190		6.1
Mo., Kan. & Tex.	1,374	1,242	132		10.6	3,353,884	4,373,784	980,100		22.3	3,897	3,522	375		10.7
Mo. Pacific	1,017	868	149		17.1	6,775,553	5,659,746	1,115,807		19.7	6,692	6,520	172		2.6
St. L. Iron Mt. & So.	887	730	157		20.5	5,382,103	5,146,962	235,141		4.6	6,293	6,093	200		3.3
Texas & Pacific	1,487	1,294	193		14.8	4,450,821	3,438,032	1,012,789		29.1	2,963	2,657	306		11.3
Wabash, St. L. & P.	3,520	3,358	162		4.8	12,117,326	12,385,011	232,685		1.9	3,442	3,658		216	5.2
Mobile & Ohio L. & P.	528	528				1,440,902	1,309,475	131,427		10.0	2,729	2,480	249		10.0
Nash., Chattanooga & St. L.	554	538	16		2.9	1,711,913	1,547,801	164,112		10.6	3,060	2,872	188		7.5
Norfolk & Western	465	428	37		8.6	1,963,504	1,671,429	292,075		17.5	4,223	3,905	318		8.2
Northern Central	322	322				4,552,137	4,255,773	296,364		6.9	14,137	13,217	920		6.9
Northern Pacific	1,770	1,118	652		58.2	6,557,754	4,853,437	1,704,317		35.0	3,705	4,341		636	14.6
Ohio Central	272	252	20		7.2	785,882	746,949	38,933		5.2	2,889	3,220		331	10.3
Ohio Southern	138	133	5		3.7	301,960	269,480	32,480		12.1	2,188	2,026	162		8.0
Pennsylvania	2,058	1,957	101		5.1	37,892,916	35,897,786	2,995,130		8.6	18,412	18,398	14		0.4
Pt. Erie, Dec. & Evans.	234	234				528,482	586,503	58,021		9.9	2,081	2,206		225	10.8
Phila. & Reading	1,240	998	242		24.0	20,816,204	15,522,995	5,293,209		33.8	10,666	15,584	1,082		6.9
Rich. & Danville lines:															
Char., Col. & Aug.	343	327	16		4.9	570,217	490,053	80,164		16.1	1,682	1,496	186		10.7
Col. & Greenville	296	296				515,945	478,701	37,244		7.7	1,743	1,617	126		7.7
Rich. & Danville	757	757				2,716,975	2,556,296	160,679		6.3	3,589	3,377	212		6.3
Va. Midland	352	352				1,077,069	1,077,509	439		14.8	3,514	3,061	453		14.8
West. N. C.	190	176	14		7.5	268,114	173,613	94,501		54.3	1,411	986	425		43.1
Main Line	195	195				1,008,698	1,039,775	31,077		2.9	5,173	5,332		159	2.9
Belleville Line	121	121				599,077	635,936	36,859		5.8	4,951	5,250		305	5.8
St. L. & Cairo	152	152				286,065	272,758	13,307		4.9	1,882	1,794	88		4.9
St. L. & San Francisco	741	660	81		12.3	2,723,088	2,550,903	172,185		6.7	3,675	3,865		190	4.9
St. P. & Duluth	202	198	4		3.1	934,328	741,986	192,342		26.0	4,655	3,786	869		22.9
St. P., Minn. & Manitoba	1,317	944	373		39.5	5,932,725	6,118,864	186,139		3.0	4,505	4,482	23		0.5
Scioto Valley	128	128				411,723	400,587	11,136		2.8	3,216	3,130	86		2.8
Shenandoah Valley	249	240	9		3.8	619,049	595,396	23,653		3.8	2,486	2,381	105		4.3
South Carolina	244	244				926,986	847,967	79,019		9.3	3,750	3,490	260		7.8
Vicksburg & Meridian	142	142				339,604	303,951	35,653		11.8	2,982	2,141	841		11.8
West Jersey	186	173	13		7.6	982,919	884,485	98,434		11.2	5,285	5,113	172		3.4
Total, 74 roads	54,369	48,985	5,405		11.0	274,127,572	247,158,892	28,975,425		10.9	5,042	5,046		4	0.1
Total inc. or dec.			5,384					26,968,680							

* Includes Utah lines. † Includes all lines east of Pittsburgh and Erie. ‡ Includes New Jersey Central from June 1, 1883.

from the Harlem River to the Grand Central Depot, a piece of property which is worth more than all the rest of its line, and may, indeed, be said to be almost beyond price, for it would be impossible now to duplicate it. No new railroad will ever be able to secure such an entrance into the city. On the New Jersey side of the Hudson, where the roads from the West and the South have their termini, nearly all the water front opposite New York is now so taken up that it would be difficult, if not impossible, for a new road to find a place, and it could enter only by permission of some existing line. This alone will probably prevent the building of a third line between New York and Philadelphia by a wholly new company; for, while nine-tenths of such a line could be built at a moderate rate, the four or five miles at each end could only be completed at a cost so enormous as to practically prevent the construction of the road.

In Chicago the new lines built during the past two or three years have all found their way into the city over old roads and chiefly by a single line, the Chicago & Western Indiana, which was built entirely as a terminal road, and which finds the sole reason for its existence and for the large sums spent upon it in the value of its terminal property.

This terminal question will grow more important year by year, and its solution will be found in many places more difficult every year. It has even been suggested that some of our growing cities might find it well to secure a suitable entrance while it is possible and hold it as the property of the city, open on fair terms to all railroads that may come. This plan has its drawbacks and would probably be impracticable in some places, but in others it might be worth careful consideration.

THE AWARD OF PERCENTAGES OF CHICAGO EAST-BOUND FREIGHT AND LIVESTOCK made recently by Mr. Fink has been appealed from by several of the roads, and will now be submitted to arbitration. It must not be inferred that the awards were generally unsatisfactory because most of the companies have appealed. In trials of this kind the decision is not for or against any one, and the company which is satisfied with the percentage awarded it or would accept it rather than raise any objection, if any one else appeals is likely to appeal also in order that it may not be thought

that the award was more favorable to it than to the road which complains.

By the rules of the Joint Executive Committee the roads concerned must submit their argument in support of their claims to the Arbitrator within three weeks of the time when notice of appeal was given, which in this case was Oct. 19. They usually take a much longer time; but notice has been given that the Arbitrator will proceed to judge the case on the facts that may be before him Nov. 21.

It is, however, not a matter of great importance that there should be an early decision in cases of this kind. Mr. Fink's preliminary award is made the basis of operations whether appealed from or not, and traffic can be distributed under it

in any engineering school in this country can read it with profit. There may be those who will be able to prepare lessons so as to write the formulas on the blackboard, but the number who can understand the reasoning or see the results will be few. The author's discussion is able and profound, but it overshoots the heads of his audience. The second part of the book gives a large and well-arranged collection of experimental results, together with an investigation of columns and beams. The arrangement of these experiments has evidently been a work of much labor, and they will be welcome to the many engineers who are unable to consult the reports and periodicals containing the original records. The chapter on columns is quite complete, as it includes the results of the late discussions on that subject. The chapter on torsion is good, although enough concerning shafts is not said. The effect of longitudinal shear on the flexure of beams seems not to have been investigated. The cases of flexure combined with torsion, and of flexure combined with longitudinal stress, are not discussed. Built beams and riveted joints are treated quite fully and clearly. A few pages are given to the collapsing of flues, while water pipes and boilers are unnoticed. For some reason not apparent a decimal point and two ciphers are often placed after the numbers denoting pounds of stress, thus "8,000.00" is written instead of simply 8,000. There is a chapter giving specifications for bridge work, and also one on the fatigue of metals. Enough is not said regarding the proper working stresses to which materials may be subjected; for instance, while very many pages are devoted to the coefficient of elasticity, and the ultimate strength of timber, there is no hint how to use these results in determining the proper size for a simple wooden beam to bear given loads. The size of the beam that will break is not in general that which the designer needs to compute, and he must know what are the proper allowable working stresses before the proper formulas can be used. We have looked over Professor Burr's book with care, and have not been able to find an indication of the fundamental fact that the factor of safety for stone should be much higher than for either iron or timber. The author writes tersely and generally clearly, and is undoubtedly a thorough master of his specialty, and yet he overlooks the point that fundamental facts, such as those just mentioned, are by far the most important, and should be brought out with the greatest emphasis. The application of determinants in the general discussion of continuous beams may be interesting and valuable, but it ought not to consume so much space as to crowd out of sight the important theoretical principle that the strength of a rectangular beam increases with the square of its depth. Refined experiments on the elastic limit and ultimate strength of iron and steel are interesting and valuable, but they ought not to receive so much attention that the important fundamental method of the cold bend test is scarcely noticed.

THE SCRAP HEAP.

Locomotive Building.

The Grant Locomotive Works in Paterson, N. J., are completing an order for six locomotives for the Louisville, New Albany & Chicago road. Many of them have been delivered.

The shops of the Manhattan Elevated road in New York are building a locomotive which is to be the pattern or standard locomotive of the road. It is of the Forney type, as a large number of the engines on the road are, and will have a number of minor improvements suggested by experience in the peculiar service required on the elevated roads.

The Baldwin Locomotive Works in Philadelphia are completing an order for the Central Railroad of Georgia. They are also building 12 locomotives for the state railroads of the Argentine Republic in South America.

The Manchester Locomotive Works in Manchester, N. H., are building 10 engines for the Chicago, Burlington & Quincy road. Two of them were shipped last week.

The Taunton Locomotive Works in Taunton, Mass., have sold to the Maine Central Co. four heavy locomotives which were built for the Southeastern Railway, of Canada, but not delivered on account of the bankruptcy of that company.

The Paterson locomotive shops turned out 52 engines in October, the Rogers Works sending away 30, the Cooke Works 14 and the Grant Works 8 in all.

Car Notes.

The Anniston Car Co. was organized Oct. 4, 1883, and having acquired the property of the Georgia Car Co., at once proceeded to remove the works from Cartersville, Ga., to Anniston, Ala. The new shops include a machine shop and erecting shop 250 by 80 ft.; smith shop, truck shop, finishing shop and paint shop, each 40 by 22 ft., with an upholstery shop for passenger car work, lumber sheds, drying-house and other necessary buildings. When fully completed, the works will be able to turn out from 10 to 15 freight cars a day. The officers of the company are Edmund L. Tyler, President; C. T. Watson, Secretary and Treasurer; C. E. Lucas, Superintendent.

Bowers, Dure & Co., in Wilmington, Del., recently shipped two passenger cars, a combination mail and smoking car, and a baggage and express car to the Georgia Pacific road.

The car shops of the Billmyer & Small Co., in York, Pa., recently completed 50 freight cars for the Costa Rica Railroad.

The Jackson & Sharp Co., in Wilmington, Del., are building three sleeping cars for the state roads of the Argentine Republic.

The Harlan & Hollingsworth Co., in Wilmington, Del., is building a state coach and a sleeping car for the President of the Argentine Republic in South America.

Bridge Notes.

The bridge over the Missouri River at Blair, Neb., is finished. It has been built by the Keystone Bridge Co., of Pittsburgh, from plans made by George S. Morison, and a large part of the superstructure is of steel. The main span is 380 ft. long. The bridge is owned by the Missouri Valley & Blair Railroad & Bridge Co., and will be used by the Sioux City & Pacific road.

The bridge works of Kellogg & Maurice at Athens, Pa., are busy, with a number of contracts on hand.

Iron Notes.

It is understood that a controlling interest in the Pittsburgh Bessemer Steel Co., whose works are at Homestead near Pittsburgh, has been sold to parties interested in the Edgar Thomson Steel Co. The officers of the Pittsburgh Bessemer Steel Co., as recently chosen, are: Wm. H. Singer, Chairman; H. M. Curry, C. C. Hussey, Henry Phipps, Jr., H. P. Smith, managers; H. P. Smith, Secretary and Treasurer.

The Thomas Iron Co. has put out of blast its two furnaces at Columbia, Pa., and two of those at Hokendauqua.

The rolling mill at Columbus, O., which has been idle some time, has been sold to parties from Milwaukee who will start it up.

The Lackawanna Iron Co., Scranton, Pa., has started a remodeled spiegel furnace at Newark, N. J., which is doing excellent work. They closed the top and the front, and put in a Cooper stove, which carries the blast up to 920 degrees at the stove. They blow through five 2½ in. tuyeres and one small one above the front, the pressure of blast ranging between 6½ and 7½ pounds. The furnace is 34½ ft. high and 8 ft. bosh. Formerly, in blowing in, the furnace would make gray iron in the first few days, not coming up to the regular grade of spiegel until the eighth day. With the remodeled furnace, spiegel was produced at the very start, and came up to 20 per cent. metal on the third day. They get more gas and more oxide of zinc, approximately 15 per cent. of the weight of pig. The production now is 8 tons per day, and it is expected that when running full it will average 10 tons, against 7½ tons formerly. Mr. G. C. Stone has charge of the furnace.—*Pittsburgh American Manufacturer.*

Pennsylvania Furnace, in Huntingdon County, Pa., has, it is said, been leased by a Pittsburgh firm, and will be put in blast as soon as the necessary arrangements can be made.

The Indianapolis Rolling Mill Co. has just finished a lot of rails for the Danville, Olney & Ohio River road. The company is building a number of Greenleaf turn-tables for the Chicago & Atlantic, the Baltimore & Ohio, and the Nashville, Chattanooga & St. Louis roads.

Arrangements have been made to reorganize the Starr Iron Works, in Camden, N. J., as the Camden Iron Works. These works, which are very extensive, have been closed for some time.

Manufacturing Notes.

The Iowa Barb Wire Co. has nearly completed its new works in South Easton, Pa., and they will be started up soon.

The Pintsch Lighting Co. is putting its system of lighting by compressed gas on the 25 additional cars for the New York, Lake Erie & Western road. This system is now in use on over 100 cars on that road, and has also been introduced in the parlor and sleeping cars in use on the road, and in the ferry boats and some of the stations.

A company has been organized in Chattanooga, Tenn., to build extensive shops for the manufacture of railroad switches and similar work.

The Rail Market.

Steel Rails.—There is considerable negotiation over some large orders, and one contract for 18,000 tons is reported placed at prices not made public. Quotations for small orders continue at \$37 per ton at mill for heavy sections and \$36 to \$40 for light rails. The mills generally are getting nearly through with their orders, and \$36 per ton and even \$35 have been named as prices that would be accepted for contracts which would keep the rolls moving through the winter.

Iron Rails.—For the first time in several months a sale of iron rails is reported. The rails in question were a lot of light rails, made some time ago in an American mill, and were bought for a Western road at \$34 per ton.

Rail Fastenings.—Quotations continued unchanged at \$2.60 per 100 lbs. for spikes in Pittsburgh, \$3 to \$3.25 per 100 lbs. for track-bolts, and 1.9 to 2 cents per pound for splice-bars. Business just now is very light and prices weak, with a fall quite possible, unless the demand increases.

Old Rails.—Business is reported light, with sales of only small lots and but a small stock of old iron rails on the market. Quotations are \$23 to 23.50 per ton in Philadelphia for tees.

Blowing up the Underground Railway.

A dispatch from London, England, Oct. 31, says: "About 8 o'clock last evening a terrible explosion occurred near the Praed street underground station on the Metropolitan Railway. On the first alarm a strong cordon of police was summoned to preserve order, to keep the way clear and to convey wounded people to the hospital. Passengers who were on the train at the scene of the explosion say that there was suddenly a loud report like that of a cannon, then a sudden darkness; the gas-lights from the front to the rear of the train being put out. The glass was broken, and splinters of wood flew about the cars, cutting and wounding many passengers. Above the din were heard the shrieks of the injured and panic-stricken people. The train, which was crowded, contained principally country visitors returning from the Fisheries Exhibition. After leaving the station, the train traveled steadily ahead, though the concussion smashed nearly all the lamps in the Praed street station and caused much damage to the permanent way. When the train reached the next station, Edgware road, the first effort was made to rescue the wounded. Some were dreadfully burned, but more were prostrated by fright. All the doctors, surgeries and dispensaries in the neighborhood were called into requisition. The first impression was then that an explosion of gas had caused the disaster, but later inquiries tend to show malice. The general opinion of the railway officials and of experts is that the disaster was caused by some explosive material which had been placed probably in the rear-most carriage. A searching inquiry is proceeding. It is believed that about 40 persons were injured, some of them dangerously."

Almost simultaneously with the Praed street affair a violent explosion occurred on the Underground Railway between Charing Cross and Westminster stations. The windows of the signaling stations in the tunnel were shattered, and at Charing Cross the glass roof of the station partly collapsed. The report was like that of artillery. The effects were like those of the Praed street explosion. Carriage lamps, windows, etc., were smashed. All traffic was suspended for a while. Though both explosions are matters of the greatest mystery, they are generally thought to have been of Fenian origin.

The shocks of both explosions are described by officials as very similar to the shock of the explosion at the local government office last March, in which Dr. Gallagher was implicated. It was stated that four machines similar to rockets were found in the tunnel near the Praed street station. Altogether six carriages were shattered by the Praed street explosion. Though about 40 persons were admitted to the hospitals, many more were injured, but they were sent directly to their own homes.

Improving Pennsylvania Railroad Stations.

The Philadelphia Ledger says: "The floral decorations along the line of the Pennsylvania Railroad during the past

summer, in the bedding of plants and the cultivation of vines and shrubbery, were all of a successful character. At all the depots, watch boxes, bridges and shops along the road from Philadelphia to Pittsburgh, where the ground admitted of the arrangements, flowers and shrubbery were planted in rich profusion. A number of the new passenger stations have projecting gables and long, low eaves, giving each of the four sides a distinctive feature. The roof is tiled and the sides diagonally weather boarded. Inside, the appointments are distinctly English, and two open fire places, with ornamental tilings, usurp the position of the modern stove. The whole structure is surrounded by a porticoed platform, and cost about \$2,500 each."

Rules for Employees.

The following are among the rules for the government of employees recently put forth by the Texas & St. Louis Co.: "Fifth—Intoxication, or the habitual or frequent use of intoxicating liquors will be sufficient cause for dismissal. All persons employed in the running of trains in any capacity who are known to practice drinking intoxicating liquors will not be retained in the service. Employees at stations and passenger train men are prohibited from smoking while on duty."

"Ninth—Every person, whatever may be his rank, accepting employment on the Texas & St. Louis Railway, does so with the full knowledge of the perils incident to the operation of railroads. Every employee is required and expected to exercise the utmost caution to avoid injury to himself and to others, and especially in the switching or other movement of trains. Jumping on or off trains or engines in motion, entering between cars in motion to uncouple them, and all similar imprudence is forbidden. Conductors, station agents, yard masters and all others in authority are instructed to enforce this rule. No person who is careless of himself or of others will be continued in the service."

One Way of Putting Down Liquor Traffic.

Two Bridges is a lonely station in the woods at the summit of the Walkill Mountain range in Sussex County, N. J. There is no town or village within several miles, and the only reason for the existence of the station is that at that point the Water Gap Branch of the New York, Susquehanna & Western road joins the main line. The only buildings at the place are the railroad buildings and a few houses for the employees, and the only inhabitants are railroad men and their families. Recently a man, whose character is said to have been not above reproach, built a house just outside of the railroad property, and started a saloon there. Superintendent McKelvey took no aggressive measures to drive him away, but simply appealed to the employees of the road, requesting them, as men of honor, not to patronize the saloon in any way, and thus prevent the man from remaining where his place might be a temptation to the weaker ones among them, and an attraction to a rough element outside. They unanimously responded to his appeal, and in a few weeks the saloon keeper, finding himself entirely without customers, closed up and moved away. His venture was so unprofitable that Two Bridges will probably be without a gin-mill for some time to come.

The Tailor's Dilemma.

Orders have been issued from headquarters of the Northern Pacific Railroad to the effect that all employees on trains and at stations over the line must appear in uniform. A tailor is now going over the road taking measurements of the employees for their new suits, who, in order to expedite matters, sends the following dispatch to all agents. "Take off everything but your pantaloons and shirt, and be on the platform when the train arrives to be measured for uniform." Arriving at one of the new stations he jumped from the train, tape line in hand, and shouted for the agent. In response to his call a handsome young lady stepped forward, accompanied by a burly six-footer, who announced that the lady was the agent and he was her brother, and demanded an explanation of his dispatch. The tailor explained the best he could.—*Butte (Montana) Miner.*

Attempt at Train Robbery.

A dispatch from Walnut Ridge, Ark., Oct. 25, reported that a train on the Iron Mountain road was stopped on the previous night by a party of six desperadoes, all heavily armed, who, finding that it was not the train they wanted, disappeared in the woods with a general surrounding of curses and blue fire.

Later dispatches, however, took away all the sensation. The supposed train robbers were only an innocent party of wood sawyers, employed by the railroad company, who flagged the train to learn if it was a local, and finding it was a through passenger train, explained the object of their action and left. Their arms consisted only of axes and wood saws.

General Railroad News

MEETINGS AND ANNOUNCEMENTS.

Meetings.

Meetings will be held as follows:
East Tennessee, Virginia & Georgia, annual meeting, in Knoxville, Tenn., Nov. 14.
New York, Lake Erie & Western, annual meeting, at the office in New York, Nov. 27.
Northern Pacific, special meeting of preferred stockholders at the office in New York, Nov. 20, to vote on the proposed issue of second-mortgage bonds.
Rochester & Pittsburgh, annual meeting, at the office in New York, Nov. 14.

Dividends.

Dividends have been declared as follows:
Boston & Maine, 4 per cent., semi-annual, payable Nov. 15, to stockholders of record Oct. 25.
Cincinnati, Hamilton & Dayton, 3 per cent., semi-annual, payable Nov. 1.
Cincinnati, Sandusky & Cleveland, 3 per cent., semi-annual, on the preferred stock, payable Nov. 1.
Manchester & Lawrence, 5 per cent., semi-annual, payable Nov. 1.
Nashua & Lowell, 3 per cent., semi-annual, payable Nov. 1. The last dividend was 4 per cent.
New York, Providence & Boston, 2 per cent., quarterly, payable Nov. 10. Transfer books close Oct. 31.

A Railroad Club in Cincinnati.

"The Railway Club of Cincinnati" opened its rooms at the building known as the "Ortiz," corner of Fourth and Sycamore streets, Oct. 27.

Brotherhood of Locomotive Engineers.

The annual convention of the Brotherhood of Locomotive Engineers closed its sessions in Buffalo Oct. 23. The meetings were held with closed doors, but it is stated that the insurance feature of the Brotherhood was carefully considered, but no changes in the system were made.

It was resolved to hold the next convention on the third Wednesday in October, 1884, in San Francisco.

The officers and delegates to the convention were hand-

somely entertained by the resident members. At the close of the meeting a handsome Bible was presented to Grand Chief Engineer Arthur.

American Society of Mechanical Engineers.

The annual meeting of this society began in New York on the evening of Oct. 31. At the opening session President E. D. Leavitt, Jr., occupied the chair, and there was a large attendance of members.

Mr. Thomas R. Pickering, of Portland, Conn., read a paper on "American Machinery at Foreign Exhibitions," and a short discussion followed. An address was made by Mr. A. C. Hobbs, of Bridgeport, Conn.

On Nov. 1 two sessions were to be held, and for the rest of the session the society will follow the programme as already published.

ELECTIONS AND APPOINTMENTS.

Addison.—This company has elected R. W. Clement, President; J. C. Barrett, Clerk; J. A. Mead, Treasurer. The road is leased to the Rutland Co. and sub-leased to the Central Vermont.

Baltimore & Potomac.—Mr. John Whittaker has been appointed Assistant General Freight Agent, to date from Oct. 15.

Boston, Winthrop & Point Shirley.—At the annual meeting in Boston, Oct. 30, the following directors were chosen: Francis French, Samuel W. Hale, Keene, N. H.; John H. Buttrick, Lowell, Mass.; Clarence A. Parks, Wakefield, Mass.; Alexander Beal, Boston. The board elected J. H. Buttrick President; Francis French, Vice-President; C. A. Parks, Clerk and Superintendent; Samuel W. Hale, Treasurer.

Central Iowa.—Mr. H. L. Shute has been appointed General Freight Agent. He has been for 25 years connected with the Illinois Central, and has been for several years General Freight Agent of that company's Iowa Division.

Chicago & Northwestern.—The following circulars from the office of General Superintendent J. D. Layng are dated Chicago, Oct. 22:

"Mr. W. B. Linsley has been appointed Assistant General Superintendent, with jurisdiction over Peninsula, Madison, Wisconsin, Galena, Iowa and Northern Iowa Divisions. His office will be in the general office, Chicago. Appointment to take effect Nov. 1, 1883.

"Mr. W. F. Fitch has been appointed Superintendent of Peninsula Division, vice W. B. Linsley. Appointment to take effect Nov. 1, 1883.

"Mr. W. P. Cogrove has been appointed Superintendent of the Winona & St. Peter Railroad. Appointment to take effect Nov. 1, 1883.

"Mr. George F. Bidwell has been appointed Assistant Superintendent of the Winona & St. Peter Railroad, with office at Tracy, Minn. Appointment to take effect Nov. 1, 1883. The Assistant Superintendent of the Winona & St. Peter Railroad will have full charge of the operation of Tracy yard, including the trains of the Dakota Division."

Cincinnati, Indianapolis, St. Louis & Chicago.—At the annual meeting in Indianapolis, Oct. 30, the following directors were chosen: R. R. Cable, Rock Island, Ill.; Thomas A. Morris, Thomas H. Sharp, Indianapolis, Ind.; Larz Anderson, Samuel J. Broadwell, B. F. Evans, George A. Hoadly, M. E. Ingalls, Charles W. West, George Wilshire, Cincinnati; Joseph S. Fay, Boston; George Bliss, C. P. Huntington, New York. The only new director is Mr. Fay, who succeeds Gen. J. H. Devereux. The board re-elected M. E. Ingalls President; E. F. Osborne, Secretary and Treasurer.

Fitchburg.—The directors have elected Mr. Eber B. Phillips President in place of Wm. B. Stearns, deceased. Mr. Phillips has had long experience as a railroad man. He was for several years President of the Eastern Railroad Co., and retired from that position a year ago on account of opposition to the proposed lease of the road to the Boston & Maine. Since then he has been President of the Toledo, Cincinnati & St. Louis. Mr. Phillips has been Superintendent of the Boston & Worcester, and President of the Michigan Southern & Northern Indiana and the Wisconsin Central.

Nantucket.—At the annual meeting in Boston, Oct. 24, the following officers were chosen: President, Johnson Dorr; Directors, James W. Cartwright, Charles F. Coffin, P. H. Folger, John H. Norton; Clerk and Treasurer, John H. Norton; Superintendent, P. H. Folger.

Newburyport.—At the annual meeting last week the following directors were chosen: Nathaniel J. Bradlee, George C. Lord, James R. Nichols, John F. Osgood, Amos Paul, Wm. S. Stevens, Nathaniel G. White. The road is leased to the Boston & Maine.

Northern Central.—Mr. John Whittaker has been appointed Assistant General Freight Agent, to date from Oct. 15.

Northern Pacific.—Mr. B. F. Matthias has been appointed Superintendent of the Missouri Division, with office at Bismarck, Dak. He is now Assistant Superintendent of the Eastern Division of the Washash, St. Louis & Pacific road.

Palestine, Sabine & New Orleans.—The directors of this new company are: Joseph Amson, G. E. Dilley, George M. Dilley, T. J. Gammage, James Hand, John Hearne, J. T. Jones, John Ozement, N. Royall. Office at Palestine, Texas.

Pennsylvania.—The following circular announces officially on appointment heretofore noted: "Charles A. Chipley has been appointed Division Freight Agent, Pennsylvania Railroad Division, with office at Pittsburgh; to date from Nov. 1, 1883.

St. Louis Eastern.—The directors of this new company are: Leander D. Parker, Carroll Sprigg, Charles H. Summers, John J. S. Wilson, Chicago; Elverson R. Chapman, New York.

Southern Railway & Steamship Association.—At the annual convention in Atlanta, Ga., Oct. 24, the following officers were chosen: President, Hon. Joseph E. Brown; General Commissioner, Virgil Powers; Secretary, C. A. Studall; Board of Arbitrators, Thomas H. Carter, John Screven and E. K. Sibley.

The only change is the election of three arbitrators instead of one. Of these three Mr. Carter, who is re-elected, was formerly Railroad Commissioner of Virginia; Mr. Screven was President of the Atlantic & Gulf Co. before the road was transferred to the present Savannah, Florida & Western Co., and Mr. Sibley is now General Manager of the Memphis & Little Rock road.

Texas & St. Louis.—Mr. James Hanglin has been appointed Foreman of this Company's shops at Texarkana, Tex. He was formerly Master Mechanic of the Transcontinental Division of the Texas & Pacific, and has been recently on the Galveston, Harrisburg & San Antonio road.

The Railway Car Association.—The following circular from C. W. Cushman, Manager, is dated Buffalo, N. Y., Oct. 25:

"On or about Nov. 1 the office of this Association will be removed from its present location to the Chapin Block, West Swan street, rooms 35, 36, 37, 38 and 39, Buffalo, New York."

Union Line.—Mr. W. O'H. Scully is appointed General Agent at Pittsburgh, vice Mr. C. A. Chipley, resigned; to take effect November 1.

United States Central.—The officers of this new company are: President, W. W. Walker, Cedar Rapids, Ia.; First Vice-President, John Sharp, Salt Lake, Utah; Second Vice-President, E. T. Wells, Denver, Col.; Chief Engineer, Lyman Bridges, San Francisco. General office in San Francisco.

United States Rolling Stock Co.—The following circulars from Mr. A. Hegewisch, President of this company, are dated New York, Oct. 26:

"Please take note that on Nov. 1 next the office of the Treasurer of this company will be removed to the city of Chicago, and that on and after that date all communications and bills for supplies should be addressed to Mr. C. Benn Treasurer, 210 LaSalle street, Chicago, Ill.

"Mr. Thomas F. B. Parker has been appointed Secretary, with office at No. 35 Broadway, New York, vice Mr. C. Benn, resigned.

"Mr. J. H. Hocart has been appointed Assistant-Treasurer and Stock Transfer Clerk, with office in New York at the above address."

PERSONAL.

—Mr. J. B. Carson, Jr., has resigned his position as Superintendent of the Kansas City Union Depot, and will remove to Chicago.

—It is said that Mr. Franklin H. Story, President, and D. J. Mackey, Vice-President and General Manager of the Chicago & Eastern Illinois, will retire from their respective positions.

—Mr. Cabell Breckenridge, whose resignation as Chief Engineer of the Alabama Great Southern and the Vicksburg & Meridian roads was recently noted, is for the present at his home in Covington, Kentucky.

—Mr. J. H. Hiland, General Traffic Manager of the Chicago, St. Paul, Minneapolis & Omaha road, who was recently so ill that his life was despaired of, has so far recovered as to be able to take a trip east for the benefit of his health. He will go to New York and expects to remain until his health is entirely restored.

—Mr. Thomas Whitridge, for many years a prominent merchant of Baltimore, died at his residence in that city Oct. 27, aged 82 years. He had been a shipping merchant for nearly 60 years, and had amassed considerable wealth. For a number of years Mr. Whitridge was a large stockholder in the Philadelphia, Wilmington & Baltimore, and a director of the company.

—Mr. Isaac E. Williams, who died in Springfield, Mass., Oct. 28, aged 67 years, had been for over 40 years in the service of the Boston & Albany road as machinist, locomotive engineer, and for nearly 20 years engine dispatcher at Springfield. Few have been so many years railroad men, and very few indeed have passed so many years in the service of one company. Mr. Williams was a trusted employee and a respected citizen.

TRAFFIC AND EARNINGS.

Grain Movement.

For the week ending Oct. 20 receipts and shipments of grain of all kinds at the eight reporting Northwestern markets and receipts at the seven Atlantic ports have been, in bushels, for the past ten years:

Northwestern		Northwestern shipments		Atlantic	
Year.	receipts.	Total.	By rail.	by rail.	receipts.
1874....	2,805,468	3,405,068	321,261	9.4	3,496,749
1875....	5,345,597	2,589,240	1,213,492	46.9	3,765,499
1876....	4,485,985	3,910,970	1,359,160	34.8	4,010,230
1877....	3,708,064	3,215,075	661,369	20.6	3,749,960
1878....	4,417,060	3,498,848	89,528	25.5	3,657,680
1879....	7,564,009	4,283,729	1,387,767	32.4	7,571,863
1880....	8,036,749	5,639,944	1,874,401	33.2	7,095,300
1881....	4,004,019	4,747,161	2,146,046	45.2	3,330,864
1882....	4,562,201	3,273,210	1,640,080	50.1	3,892,298
1883....	6,259,317	5,280,610	2,226,790	42.2	4,531,962

The receipts of the Northwestern markets for the week were 1,700,000 bushels more than in the corresponding week of last year, but much less than in 1879 and 1880. They were 1,042,000 bushels less than in the previous week of this year, and the smallest for ten weeks.

The shipments of these markets were 2,007,000 bushels more than in the corresponding week of last year, and were equalled only in 1880; they were, however, 1,014,000 bushels less than in the previous week of this year. The rail shipments were larger than in any corresponding week. The shipments down the Mississippi were but 52,389 bushels, or 1 per cent. of the whole.

The Atlantic receipts were considerably larger than in the corresponding week of 1882 and 1881, but much smaller than in any of the four years previous. They were 622,000 bushels more than in the previous week of this year, however.

The decrease in Northwestern receipts from the previous weeks is proportionally larger at St. Louis than at Chicago, and the St. Louis receipts are the smallest since the middle of July. Duluth and Milwaukee continue to have large receipts. In August St. Louis had 17.4 per cent. of the total receipts, against Chicago's 51.4. In September Chicago's proportion was 58 per cent., St. Louis 11.2. In this week ending Oct. 20 Chicago received 52.4 per cent. and St. Louis 7 per cent. of the whole. This falling off at St. Louis is usual when there are light winter wheat shipments.

Exports from Atlantic ports in this week ending Oct. 20 for four years have been:

	1880.	1881.	1882.	1883.
Flour, bbls.....	129,775	107,136	156,375	139,698
Grain, bush.....	5,549,658	2,837,246	1,846,094	1,869,455

There is not much difference between this year's and last year's exports, but a great decrease this year from 1881 and 1882.

Petroleum.

The production of the Pennsylvania and New York oil wells for September is given as follows by Stowell's Petroleum Reporter in barrels of 42 gallons:

	1883.	1882.	Inc. or Dec.	P. c.
Production.....	1,913,370	2,620,380	D. 707,010	27.0
Shipments.....	2,325,574	1,992,171	I. 833,404	16.7
Stock, Sept. 30....	35,752,677	32,400,303	I. 3,352,374	10.4
Producing wells....	17,300	19,000	D. 2,300	11.7

The production was exceeded in three months of the present year, in eleven months of last year and in eleven months of 1881. Of the total reported the Alleghany District in New York furnished 16.3 per cent.; the Bradford District

in Pennsylvania 56.5; the Warren District 15.0; and the Lower District 12.2 per cent.

The shipments are the largest on record in any month for 12 years. For the fourth month this year they exceeded the receipts, which has not been the case before for 12 years. The stock reported is all in the pipe lines. It was diminished during the month by 412,204 barrels, by which amount the shipments exceeded the production.

The number of producing wells increased 200 during the month, although 2,300 fewer wells are reported now than a year ago. During the month 321 new wells were completed and 20 dry holes are reported. There were 314 new wells in progress at the close of the month.

	Barrels.	Per cent. of total.
New York.....	1,025,909	44.1
Philadelphia.....	190,557	8.2
Baltimore.....	95,333	4.1
Boston.....	1,440	0.1
Cleveland.....	507,638	21.8
Pittsburgh.....	59,144	2.5
Local points.....	223,203	9.6
Refined at Creek refineries.....	222,350	9.6
Total.....	2,325,574	100.0

Shipments of oil refined at Creek refineries, reduced to its equivalent in crude, were: New York, 91,795; Philadelphia, 6,373; Baltimore, 7,790; Boston, 52,800; local points, 63,592; total, 232,350 barrels.

The Reporter says: "The present drain upon stocks, in the light of continued absence of new territory, must go on more rapidly during the winter months, when cold weather restricts the yield, particularly of the pumping wells which form so large a proportion of the production."

"The rich territory obtained in the Balltown District during the month has developed very large but very short-lived wells, whose decline from 1,000 barrels to less than 100 barrels per day has been a question of a few days only. The Cooper Tract wells have shown rapid decline in spite of the torpedo, and it has become evident that the markets supplied by American oil must look to the older Bradford and Alleghany (New York) fields for their petroleum."

Railroad Earnings.

Earnings for various periods are reported as follows:

Nine months ending Sept. 30:		1883.	1882.	Inc. or Dec.	P. c.
Nash., Chat. & St. Louis.....	\$1,711,913	\$1,547,801	I.	\$164,112	10.6
Net earnings.....	730,657	633,634	I.	97,023	19.4
Norfolk & West.....	1,096,891	1,071,429	I.	25,462	2.3
Net earnings.....	896,540	724,991	I.	171,549	23.7
Northern Cent.....	4,552,137	4,255,773	I.	296,364	6.9
Net earnings.....	1,785,151	1,585,296	I.	199,855	12.6
Pennsylvania.....	37,802,916	35,887,796	I.	2,005,120	5.6
Net earnings.....	14,070,552	13,604,506	I.	476,046	3.4
Phila. & Reading.....	20,816,204	15,552,055	I.	5,264,149	33.8
Net earnings.....	9,734,424	6,760,339	I.	2,974,085	44.0
Ph. & R. Coal & Iron Co.....	12,338,853	10,779,248	I.	1,559,605	14.5
Net earnings.....	373,090	847,969	D.	309,081	45.3
South Carolina.....	926,586	847,969	I.	78,617	8.3
West Jersey.....	882,019	484,483	I.	397,536	81.2
Net earnings.....	395,808	390,700	I.	5,108	1.3

Eight months ending Aug. 31:
Union Pacific.....\$18,557,211
Net earnings.....8,591,618

Seven months ending July 31:
N. Y., L. Erie & Western.....\$12,278,919
Net earnings.....3,377,914

Month of July:
N. Y., L. Erie & Western.....\$2,111,456
Net earnings.....616,773

Month of August:
Union Pacific.....\$2,576,446
Net earnings.....1,119,978

Month of September:
Nash., Chat. & St. Louis.....\$197,798
Net earnings.....80,610

Norfolk & West.....	286,537	232,774	I.	53,763	23.1
Net earnings.....	158,790	129,160	I.	29,630	23.1
Northern Cent.....	545,727	557,558	D.	11,831	2.1
Net earnings.....	250,757	246,375	I.	4,382	6.1
Pennsylvania.....	4,634,098	4,417,602	I.	217,396	4.8
Net earnings.....	1,922,365	1,734,426	I.	187,939	10.8
Phila. & Reading.....	3,333,217	2,019,017	I.	1,314,200	65.1
Net earnings.....	1,748,682	1,000,083	I.	747,999	74.7
Ph. & R. Coal & Iron Co.....	1,861,194	1,469,315	I.	391,879	26.7
Net earnings.....	94,472	88,148	I.	6,324	7.2
Shenandoah Val.....	91,726	.....	.....	.....	.....
Net earnings.....	33,080	.....	.....	.....	.....
South Carolina.....	132,821	121,359	I.	11,462	9.5
West Jersey.....	110,931	105,383	I.	5,548	5.0
Net earnings.....	24,274	25,603	D.	1,329	5.2

Second week in October:
Bur., C. R. & No. 1.....\$58,200
Fla. Cent. & W.....8,061
Grand Trunk.....370,189
Marq., H. & O.....26,160

Chi. & Alton.....	\$218,297	\$210,895	I.	\$7,402	3.5
Chi. & East Ills.....	43,578	47,946	D.	4,368	9.1
Chi. & Gd. Trunk.....	62,280	52,640	I.	9,640	18.3
Lake Erie & W.....	29,407	30,830	D.	1,423	4.6
Louisv., Ev. & St. Louis.....	17,500	.....	.....	.....	.....
Mo. Pacific.....	1,305,328	1,112,934	I.	192,394	14.6
St. L. & San Fran.....	80,071	82,135	D.	4,063	4.9
St. P. M. & Mann.....	200,300	224,430	D.	24,130	10.7

Weekly earnings are, in general, partly estimated, and are subject to correction by later reports.

Coal.

Coal tonnages for the week ending Oct. 20 are reported as follows:

	1883.	1882.	Inc. or Dec.	P. c.	
Anthracite.....	757,398	663,889	I.	63,509	9.7
Semi-bituminous...	128,318	121,014	I.	7,296	6.0
Bituminous, Penna.	80,071	70,842	I.	9,229	13.0
Coke, Penna.	59,695	49,559	I.	10,136	20.4

The anthracite trade is reported quiet with a lighter demand than usual at this season. There is still some talk of restricting production, but nothing has been done in this direction.

The bituminous trade is also very quiet. The production continues large.

The coal tonnage of the Pennsylvania Railroad for the week ending Oct. 20 was as follows:

	Coal.	Coke.	Total.
Line of road.....	163,576	50,719	214,295
From other lines.....	52,270	8,976	61,246
Total.....	215,846	59,695	275,541

The total tonnage this year to Oct. 20 was 9,672,880 tons, against 8,846,880 tons to the corresponding date in 1882; an increase of 826,000 tons, or 9.3 per cent.

Cumberland coal shipments for the week ending Oct. 27 were 57,043 tons. The total shipments this year to Oct. 27 were 2,086,936 tons.

A meeting of representatives of the Pennsylvania, the Baltimore & Ohio and the Pittsburgh, McKeesport & Yough-

ogbeny roads will be held Nov. 3 to arrange a division of the coke traffic of the Connellsville and Pittsburgh regions.

A dispatch from Philadelphia, Oct. 31, says: "It has been disclosed to-day that the Pennsylvania Railroad Co. is about completing a policy it has entertained for some time of leasing its mines. The company's officers have very little to say on the subject, but those who are in their confidence state that there is every reason to believe that the arrangements for leasing the properties have been about completed, and that they will be taken by a wealthy syndicate, of which Wm. L. Scott, of Erie, is the head. The terms of the lease have not been made known, but those in position to know say the Pennsylvania Railroad Co. will not realize less than \$1 per ton net on all the coal taken out of the mines. Their entire production this year will be 3,000,000 tons. The collieries are located in the Shamokin Region, and their output will be nearly all used in the Western trade, being shipped from Buffalo and Erie."

Cotton.

The cotton movement for the week ending Oct. 26 is reported as follows, in bales:

	Interior markets.	Seaports.
	Receipts, Shipments.	Receipts, Shipments.
1883.....	145,330 101,314	252,245 120,329
1882.....	146,064 131,786	241,738 142,488

The movement at interior markets shows a decrease as compared with the previous week. The total receipts at these markets from the beginning of the crop year (Sept. 1) have been 798,126 bales; the stock on hand Oct. 26 was 233,985 bales.

The total receipts at seaports from Sept. 1 to Oct. 26 were 1,223,986 bales; the exports were 485,113 bales, and the stock on hand reported Oct. 26 was 723,186 bales, an increase of 39 per cent. over last year.

Regulations for Pacific Coast Shipments.

The Transcontinental Association (California traffic), which is composed of the Union Pacific, Central and Southern Pacific, Atchison, Topeka & Santa Fe, Missouri Pacific and Texas Pacific, Northern Pacific and Oregon Railway & Navigation Co., Burlington & Missouri River, Galveston, Harrisburg & San Antonio, and Denver & Rio Grande railroads, calls the attention of shippers to the following regarding the size of cars which it is safe to run west of the Missouri River and the amount of freight to be loaded thereon:

"First—Owing to the nature of grades, tunnels, snow-sheds, etc., the following are given as the maximum dimensions of freight cars which it is safe to run west of the Missouri River—viz., Length 35 ft., height from top of rail to eaves of car 12 ft., width 10 ft. Cars which exceed these dimensions in any particular will not be received by the lines west of the Missouri River. Connecting lines will please take notice, and advise shippers whose interests materially suffer when goods are transferred en route.

"Second—Agricultural implements, vehicles, furniture and similar light and bulky freight in car-loads to the Pacific coast to be entitled to the rate provided in the published tariff must be loaded on or in cars whose outside dimensions will not cube to exceed 1,890 ft. For example: If the car is 28 ft. long and 9 ft. wide, then height of body shall not exceed 7 ft. 6 in. If the car is 33 ft. long and 8 ft. wide, then height of body must not exceed 7 ft. 2 in.—the object being to provide that the contents of a car of any dimensions (within the maximum above given) whose body shall not exceed by outside measurement 1,890 cubic feet shall be estimated and charged for as 20,000 pounds, unless actual weight of contents is greater, when loaded with articles above named.

"Third—Any excess of 1,890 cubic feet, outside measurement, in one car will be charged against the contents at proportionate rate—that is, each cubic foot will be estimated as weighing 10,582 pounds and charged for accordingly, provided, however, if actual weight of contents is greater than the above estimate, charges will be collected on the actual weight.

"Fourth—The above rules limiting the maximum dimensions and for estimating weight of contents of box cars to be applied to platform cars and their loads. When platform cars are used the load should be well secured by iron rods passing over the load and connecting upper ends of stakes, so as to prevent spreading."

Ohio River Traffic Commission.

At a meeting of the lines in this organization held in Chicago, Oct. 26 and 27 to complete arrangements for carrying out their cooperative agreement, it was determined that the traffic carried by the agreement should be all that passes between Chicago and other competing points north of the Ohio to and from Southern points south of the Ohio and the Potomac, east of and including the Mobile & Ohio, which crosses the Ohio at Cincinnati and Louisville, except that going to points in West Virginia and Virginia, for which the Baltimore & Ohio competes. The question whether traffic crossing at Evansville should be included was left to be determined at a meeting to be held at Indianapolis, Nov. 8. Traffic crossing there and at Cairo also is to be governed by the rates of the Association, but the Cairo traffic and perhaps the Evansville traffic will not go into the pool.

It was agreed that the Chicago & Eastern Illinois might charge \$1 less for a ticket between Chicago and Cincinnati, 75 cents less for one between Chicago and Indianapolis, and \$1 less from Chicago to Louisville (but not from Louisville to Chicago) than the standard fare by the short lines, until Dec. 1, when the subject will be reconsidered. It was agreed to pay uniform rates of commission for sales of tickets. Contracts for carrying freight were to be placed in the Commissioner's hands by Nov. 1.

A committee was appointed to draft a plan for a traffic agreement between the lines of the Ohio Association and those roads having lines to the Ohio River not in the pool, which is to be similar to the Northwestern traffic agreement, providing penalties for a violation of the rates, which is to be submitted to the Indianapolis meeting Nov. 8. The committee consists of J. F. Tucker, Illinois Central; E. B. Stahlman, Louisville, New Albany & Chicago; V. T. Malott, Union Railway Co. and President of the Ohio River Traffic Commission; Colonel Robert Forsyth, Chicago & Eastern Illinois, and Commissioner L. D. Richardson.

OLD AND NEW ROADS.

Arizona & New Mexico.—The total length of this new road is 70½ miles, commencing at a junction with the Southern Pacific Railroad at Lordsburg, Grant County, N. M., and ending at Clifton, Graham County, Arizona; 28½ miles being in New Mexico. The gauge is 3 ft., the track laid with 35-lb. steel on red-wood ties 6 by 8 in. and 6 ft. long; 64½ miles on the main line are now laid and in operation; the grading is completed, and awaiting arrival of rails to lay the balance. These rails are expected to arrive in about two weeks.

The last 11 miles is over a divide between the Gila and San Francisco rivers, requiring a 2 per cent. maximum grade, and 28' 45" maximum curve; there are four tunnels aggregating 883 ft. in length, and 3,640 lineal ft. of trestle bridge. All the excavations are in hard rock. Work on the

grade was commenced Jan. 28 last, and on tracklaying March 21. The work has been in charge of Mr. N. S. Davis as Chief Engineer.

Atchison, Topeka & Santa Fe.—The Boston *Advertiser* says: "The Atchison books closed Oct. 11 for the regular quarterly dividend, and reopened the 22d. At the date of the closing of the books there were registered in Boston 8,213 stockholders, a gain for the quarter of 649. There are in New York and Chicago 115 stockholders. A year ago, on the closing of the books for the November, 1882, dividend, the Atchison Co. had a total of 5,292 stockholders. The gain in a single year has therefore been 3,936 stockholders, and this with no increase in the volume of stock."

Atlantic & Pacific.—A joint circular announcing the opening of this road has been issued by the General Passenger Agents of this road, the St. Louis & San Francisco, the Atchison, Topeka & Santa Fe and the Central Pacific. It contains the following information as to tickets, etc.:

"One combination ticket can be used for all local points on the Southern Pacific road to which it is at this time necessary to issue.

"All through emigrant tickets to points west of the Needles will be exchanged at whatever point holders reach the Atchison, Topeka & Santa Fe Railroad, and exchange tickets will be issued only to that destination to which they wish baggage checked.

"Baggage of every class and description will be rechecked over our lines; hence, no through baggage checks will be accepted unless previously agreed upon.

"The free-baggage allowance on tickets of all classes to points west of the Needles is 100 lbs. per ticket; half-tickets, 50 lbs. All in excess of this will be charged for at regular rates, except that passengers holding first-class tickets to San Francisco, with pre-paid orders for steamer passage thence to Trans-Pacific ports, will be allowed 250 lbs. free baggage, and those holding second-class tickets, 150 lbs. free, on presentation of such orders to the baggage agents of our companies.

"Orders for steamship passage can be purchased at principal ticket offices. Each ticket from the Atlantic seaboard to San Francisco, issued as part of a through prepaid passage from Europe to a Trans-Pacific port, must have indorsed on the contract, and on each coupon, the number and date of the steamship company's order on which it is issued, and the name of the steamship company.

"Tickets of all classes must be made non-transferable and must bear signature of purchaser, and of agent selling as witness thereto, and should include the following, viz., 'This ticket is not transferable, and if presented by any other person than the original holder, whose signature is hereon, conductors will take it up and collect full fare. The holder will write his or her signature when required by conductors or agents.'

"Many of our connecting lines have adopted the above in their recent issues of tickets of the Stromberg pattern, which, however, should not be printed to include three classes (1st, 2d and 3rd) in the same form. Third class or emigrant tickets must be of a form distinct from the others, because of necessary exchanges as stated herein.

"Our conductors are instructed to recognize all tickets only as originally printed, excepting first-class (contract) tickets reduced to second-class by punch.

"All tickets reduced to half fare must be so changed by punch—stamping or inking not being sufficient, as liable to erasure.

"Our rule for fares for children is: Children of 5 and under 12 years of age, half fare; under five years of age, free."

Baltimore & Ohio.—Steady progress is being made in the grading of this company's new extension from Baltimore to Philadelphia. New contractors have taken up the work at Principio Furnace and Jacksonton, Md. The right of way through Havre de Grace has nearly all been secured. The road will pass through the outskirts of that town, but a spur will probably be run into the town. The work will, it is expected, be pushed as fast as possible from Baltimore to Havre de Grace, in order that the track may be used to carry material for the bridge over the Susquehanna.

Bangor & Portland.—Surveys are in progress for an extension of this road from Portland, Pa., across the Delaware to a connection with the New York, Susquehanna & Western road. The cost of the bridge over the Delaware is estimated at \$100,000.

Beach Creek, Clearfield & Southwestern.—The headings of the tunnel on this road, near Jersey Shore, Pa., are through, and the tunnel will be ready for the track in about six weeks. It is 1,300 ft. long, and work upon it was begun in June last. Work is being pushed on the grading all along the line, which runs from Jersey Shore into the Clearfield coal region.

Bellaire, Zanesville & Cincinnati.—Track on the extension of this road is now laid for 8 miles westward from the late terminus at Freedom, O., 38 miles from Woodsfield, and 80 miles from Bellaire. Tracklaying is also in progress from Zanesville eastward and from Caldwell east.

Boston & Maine and the Eastern.—The Boston *Advertiser* of Oct. 31 says: "In the equity session of the Supreme Court, yesterday, Judge Field gave a hearing on the bill in equity brought by Willard P. Phillips, one of the trustees of the Eastern Railroad, against the Eastern Railroad Co. and Messrs. Bacon and Rogers, the other trustees under the mortgage, for an injunction to prevent the defendants from leasing said railroad to the Boston & Maine Railroad Co., as authorized by an act of the Legislature, and which was subsequently ratified by a majority of the stockholders of the Eastern Railroad. Yesterday's hearing was on preliminary questions of pleading to put the case in a proper form for the consideration of the full court for a final decision. William G. Russell and C. P. Putnam appeared for the plaintiff, and Richard Olney for the respondent. The principal ground relied upon by the complainants is that the execution of said lease would be a violation of the terms of the trust under which the plaintiffs were appointed between the road and its creditors, in that it conflicts with the mortgage under which the plaintiff is one of the trustees for the holders of the certificates of indebtedness, by making no provision for a continuance of the sinking fund, established by the mortgage for the protection of the holders of the certificates of indebtedness, or bondholders, as they are commonly known. It will be remembered that in March last the directors and stockholders of the respondent road voted to authorize the execution of a lease of it to the Boston & Maine road on the condition that the action was ratified by the Legislature of New Hampshire. The complainant thereupon filed a bill against the road, and obtained a preliminary injunction, which still exists, against the execution of the lease by the President and Treasurer, as provided by the vote of the directors and stockholders. To this bill a general demurrer was filed. Judge Fields yesterday allowed the plaintiff to amend his bill by putting in a vote of the corporation, and that the directors and stock-

holders voted to 'authorize' rather than 'instruct' the officers of the road to execute said lease. Mr. Olney said that he did not wish to interpose any technical obstacles to the speedy and final determination of this suit. The complainant's bill was so defective at the time it was filed in not stating the real facts in the case, that it would have been dismissed; but nothing would have been gained by such dismissal, a new bill could have been filed. The question of parties is an important one, said Mr. Olney, and, to prevent any new actions after this one shall have been decided, the Boston & Maine road and the bondholders and creditors of the road should be joined. Messrs. Russell and Putnam replied as to the first proposition, that the Boston & Maine Co. could not be made a party, it not having acquired any rights under the contract. As to the other point, they claimed that the trustees fully represented the bondholders, and cited several authorities in support of their views. Judge Field said that if he concluded to summon in the bondholders, he should give ample notice by publication, not only in this country but in England, where many of the bondholders reside. The judge then reserved his decision on the question of making the Boston & Maine a party respondent. The judge said that if the demurrer were withdrawn and an answer filed and the act of the Legislature of New Hampshire authorizing said lease by a two-thirds vote of the stockholders were filed in the case, the pleadings would then be in a proper form upon which he could pass on the matters of fact to reserve the questions of law for the full Court. This mode of procedure was agreed to by counsel, and the case postponed to await such action."

California Southern.—Track on this road has now been laid to San Bernardino, Cal., 3½ miles northward from the late terminus at Colton and 130½ miles from the southern terminus at National City, near San Diego.

Canadian Pacific.—A report comes from Montreal that the Canadian government has agreed to guarantee 3 per cent. annual interest on the stock of this company. Another report is that the government will give the guarantee in consideration of the deposit by the company of a sufficient fund as security to indemnify it.

Work has been stopped on the construction of the main line, which has now reached a point within 35 miles of the summit of the Bow River Pass in the Rocky Mountains. It was said that there is a serious difference of opinion among the engineers, some maintaining that the continuation of the route through Kicking Horse Pass, on which the work has so far proceeded, is not practicable, and that the line must be changed, but this is contradicted. The workmen employed on the line are returning to Winnipeg in large numbers.

A later dispatch from Ottawa says: "The 3 per cent. 10-year guarantee on the \$100,000,000 of stock of the Canadian Pacific Railway, just voted by the Dominion Council, as already reported, was granted because the government subsidies have apparently not been sufficient to encourage the investing public to purchase stock. This guarantee involves the sum of \$30,000,000. A deposit now of a little over \$24,000,000, at 4 per cent., will enable the government to make payments semi-annually of \$1,500,000 for the next 10 years. This the company undertakes to deposit with the government in cash and approved securities, and \$15,000,000 in cash to be deposited on the execution of the deed of guarantee, \$5,000,000 more within the next four months, and most undoubted security for the balance will be deposited. The terms of the original contract with the company are not changed in any particular, except that it is understood that the entire railway, from Callander to the Pacific Ocean, will be completed by May 1, 1889, probably by the fall of 1885."

Central of New Jersey.—The taking of testimony in the Dinsmore suit to set aside the lease has attracted a good deal of attention owing to the reputation of the counsel engaged and to the sharp personal encounters between President Gowen, of the Reading, and ex-Senator Conkling, who appeared on the other side. Nothing of any importance has been brought out, however, which was not known before.

Chicago, Rock Island & Pacific.—Grading has been begun for a second track from Bureau Junction, Ill., to Sheffield, 20 miles. The construction of this section will complete the second track from Chicago to Rock Island.

Chicago, St. Paul, Minneapolis & Omaha.—The track of the Northern Division is now completed to Bayfield, Wis., 9 miles northward from the late terminus at Vandever, 60 miles beyond Cable and 180 miles from North Wisconsin Junction. Trains will soon run through to Bayfield.

Chignecto Ship Railroad.—The Board of Trade of St. John, N. B., has pronounced in favor of this project. The proposed railroad is to run from the head of the Bay of Fundy across the Isthmus of Chignecto to the Gulf of St. Lawrence near Tidnish Head. It will be 17 miles long, and it is proposed to build it with sufficient capacity to carry vessels of 1,000 tons. The plan is to raise the vessels from the docks to be built at either end by hydraulic elevators, and transfer them to the cars or cages which will carry them. The proposed road will save vessels the long and sometimes dangerous voyage around Nova Scotia, which they now have to take when bound for St. John or ports in the United States.

Cincinnati, Hamilton & Dayton.—The following statement is made for the six months of the fiscal year from March 1 to Sept. 30:

	1883.	1882.	Inc. or Dec. P. c.
Earnings.....	\$1,598,513	\$1,549,308	I. \$49,205 3.2
Expenses.....		1,025,591	
Int. and guar. anteed div....	1,360,719	397,400	D. 62,273 4.4
Surplus.....	\$237,795	\$126,317	I. \$111,478 88.3

From this surplus a dividend of 3 per cent. has been declared on the common stock.

Cincinnati, Indianapolis, St. Louis & Chicago.—At the first meeting of the new Board of Directors, held after the annual meeting on Oct. 30, President Ingalls made a statement of the improvements needed on the road. He also stated that it would require the net earnings of the road for about 18 months to pay for these improvements and to pay off the floating debt of the company. The board voted to pass dividends for the present and to apply the net income as proposed.

Cornwall & Lebanon.—This company recently began work on a short spur from its line to the iron mines at Cornwall, Pa. The completion of this branch has, however, been prevented by the violent opposition of the old Cornwall Railroad Co., whose men tore up the track which had been laid. The matter will be referred to the courts.

Danville, Olney & Ohio River.—The committee appointed a year ago has issued a circular which speaks of the present condition of the road and its inability to earn its operating expenses for the year past. Receivers' certificates to the amount of \$100,000 mature next January, and there are also other liens to be met at the same time, and, as it is necessary to take immediate action to save the road, the committee submit a plan of re-organization, to be accepted

by the bondholders. This provides that the road, when sold under foreclosure proceedings, be purchased by the bondholders; that new first-mortgage bonds, bearing interest at the rate of 6 per cent. be issued to the amount of \$700,000; that the proceeds from the sale of the same be used for the payment of all existing liens; the extension of the road from Olney to Fairfield, where it is expected an advantageous arrangement for an entrance into Chicago can be made; the equipment of the road and all necessary repairs. Additional mortgage bonds, which, with the first-mortgage bonds are to make the entire issue not greater than \$10,000 to the mile, are also to be issued, the same to bear interest for the first two years at the rate of 3 per cent., for the third year 4 per cent., for the fourth year 5 per cent., and 6 per cent. thereafter; and, before the delivery thereof, the interest coupons for the first year shall be taken from said bonds and canceled. These bonds are to be given to the holders of the present first-mortgage bonds, the latter to be taken in exchange therefor at 40 per cent. of their par value, and in addition thereto, 60 per cent. of the par value of the company's stock is also to be given.

A number of the bondholders met in Boston, Oct. 29, and appointed a committee to examine the condition of the road and consider the plan, and to report to an adjourned meeting to be held Nov. 20 next.

Detroit, Bay City & Alpena.—The track is reported laid on this road from East Tawas, Mich., westward to Rifle River, 28 miles. Tracklaying has also been begun on the four miles from Wells station, on the Mackinaw Division of the Michigan Central, west to Rifle River. At that point a high bridge is to be built. From East Tawas east the grading is done for about 9 miles towards Au Sable, and track is laid 4 miles to Bristol.

Florida Central & Western.—This company has lately received 500 tons of new rails at Jacksonville, and they will be put in the track where most needed.

Franklin & Somerset.—Surveys are being made for this road from Strong, Me., to North New Portland. The road will be located this fall and grading begun early in the spring.

Georgia Pacific.—The track of this road is now laid from Birmingham, Ala., eastward 24 miles, leaving a gap of only 5 miles between the end of the track and the Cave Creek tunnel. At the tunnel the headings are now nearly through, and it is expected that trains can run through early in December, when the road will be opened through from Atlanta to Birmingham.

West of Birmingham the line to Coalburg, 12 miles, is now very nearly ready for use, and will be finished in a short time.

Greenville & Laurens.—The work of locating this road from Greenville, S. C., to Laurens, is now in progress under Chief Engineer W. W. Kirk. It is expected that contracts for grading the road can be let early in December.

Harlem River.—This company has filed articles of incorporation in New York to build a railroad from the junction of the New York, New Haven & Hartford and the New York & Harlem roads near Williamsbridge, N. Y., southward to the Harlem River at Mott Haven, a distance of 8 miles. It is possible that the organization may be intended to build a new track for the New Haven road where it now uses the Harlem tracks.

Illinois Central.—The Yazoo & Mississippi Valley Branch of the Southern Division has been opened for business to Benton, Miss., 26 miles northwest from the main line at Jackson. Work is progressing steadily towards Yazoo City, 22 miles further, which is to be the terminus of the branch.

Kentucky Central.—On the extension of this road southward track is now laid from the junction with the Richmond Branch near Harris, Ky., southward 12 miles to the tunnel at Boone's Gap. The tunnel is nearly completed and tracklaying southward toward Livingston will soon be resumed.

Kingston, Warwick & Easton.—The final location of this road is now being made, and the contracts will be let as soon as possible. It will extend from Montgomery, N. Y., the southern terminus of the Wallkill Valley road (which is owned by the New York, West Shore & Buffalo Co.), to a connection with the Lehigh & Hudson River road near East Chester, and will be about 13 miles long. It will be operated by the Lehigh & Hudson River Co. when completed.

Lamoille Valley Extension.—The track is reported laid on this road, and it will probably be opened for traffic about Nov. 15. It is 13 miles long, extending from Scranton, Vt., westward to Rouses Point, N. Y., crossing Lake Champlain near its northern end on long pile bridges, which have been the most expensive part of the road to build. The object of the road is to connect the Ogdensburg & Lake Champlain and the St. Johnsbury & Lake Champlain roads by a line under their own control. The road will be operated by the Ogdensburg & Lake Champlain Co. under lease.

Lehigh Coal & Navigation Company.—The Philadelphia Ledger says: "The Lehigh Coal & Navigation Co. has arranged with Drexel & Co. for the extension of its first mortgage loan, known as the Lehigh 6s of 1884, maturing April 1, 1884, for 30 years and 3 months, till July 1, 1814. The amount thus extended is \$5,000,000 at par, and the rate of interest at 4½ per cent., payable quarterly. The present rate of interest on this loan is 6 per cent., so that the company will save by this arrangement \$75,000 per annum. The privilege of the extension is first offered to the present holders until Dec. 31, 1883, upon presentation of their certificates at the company's office before that date. After that date the option will absolutely cease, the remainder being taken by Drexel & Co. The properties upon which this mortgage is secured are the coal lands and improvements of the company near Mauch Chunk, containing at this time about 6,000 acres of the best anthracite coal, producing about 1,000,000 of tons annually, and valued at \$7,500,000; also the Lehigh & Susquehanna Railroad, above Mauch Chunk, on which portion of the road the rental is about \$750,000, and its actual cost is \$6,500,000; and also the Lehigh Canal, producing an average income of \$60,000 annually, valued at \$3,000,000. It will thus be seen that this mortgage of \$5,000,000 covers a property valuation of \$17,000,000, producing a revenue of \$1,115,000 per annum."

Louisville, New Orleans & Texas.—The track of this road is now completed to Baton Rouge, La., 89 miles west by north from New Orleans, and regular trains have begun to run between those cities. For the present, as the stations are not finished, the trains run into New Orleans on the Illinois Central track, using it from Kennerly, 10 miles above the city; this, however, is only a temporary arrangement. The road passes through a number of sugar plantations, and arrangements have been made for spurs and siding to reach all the large sugar houses. It is also expected that a local traffic can be built up in carrying cane to the sugar houses for the small planters who have no machinery of their own. Incidentally the road has been a great benefit to the planters, its road-bed serving to

strengthen and improve the levees and to close several old crevasses which have existed for some time. Stations have been established at the principal plantations, and there will be a flag station for local trains at each plantation along the coast.

Massachusetts Central.—It is said that the completed portion of this road will be reopened as soon as the reorganization of the company is completed, and that it will be operated by the Boston & Lowell for a time, at least.

The Boston Advertiser says: "The near approach of the reorganization and resumption of business by the Massachusetts Central calls attention to the act of the last Legislature, under which it is authorized. Of course, it is not supposable that any general consolidation was intended by the framers of the bill, and very possibly no thought of it entered the minds of the legislators who voted for it; but a comparison of the act in question and the railway map of this state will show that, if interest should dictate, the Massachusetts Central might be made the means for uniting most of the railroads of this state under one management. The Massachusetts Central line leaves the Boston & Lowell at East Cambridge; crosses the Old Colony Northern Division at South Sudbury, the Fitchburg at Hudson, the Worcester & Nashua at Oakdale, the Boston, Barre & Gardner at Holden Junction; and as it proceeds on its western way, will connect with the New London Northern, the Boston & Albany, the Connecticut River and other roads. Now, section 7 of the act for its reorganization says:

"The Massachusetts Central Railroad Co., or if a new corporation shall be organized under the third section of this act, then said Central Massachusetts Railroad Co. is hereby authorized to make with the Poughkeepsie, Hartford & Boston Railroad Co., a corporation existing under the laws of the state of New York, and its successors, or with any other railroad corporation, whether within or without this commonwealth, whose railroad now or shall hereafter connect with the Massachusetts Central Railroad, as already located, or the Central Massachusetts Railroad, or with either of said railroads, as it may be extended under the authority herein given, such basis or operating contracts, or such consolidations and corporate unions as the directors of each corporation concerned may agree to, and as may be approved by a majority in interest of the stockholders of each, at a meeting or meetings called for the purpose."

"Under these provisions it is evident that no legal obstacle exists to the consolidation of the Massachusetts Central with each of these roads in turn, and the union of all into one great corporation. Under the Boston & Lowell's Great Northern charter, that road might consolidate with the Fitchburg and then with the Boston & Maine, which in the meantime might have completed its consolidation with the Eastern and then with the Boston & Providence, and thus all the principal railroads of the state would be brought into one great consolidation. Of course nothing of the sort is likely to happen, but comment is made by railroad men that the law does not hinder it."

Michigan Central.—The Suspension Bridge (N. Y.) Journal gives the following account of the progress made last week on the new bridge of the Canada Southern Division over the Niagara River: "On the American side the traveler, which is to be used in putting up the cantilever, was completed on Wednesday and got into position Thursday. The first piece was lowered from it at 8 o'clock Friday morning. The section of the river arm, which will be placed on top of the steel tower and the one next to it will be the most difficult part to build, and the putting of them up will occupy the most of next week. After that Supt. Ryland expects to put up a section a day until the middle of the river is reached from this side. On the Canada side the cantilever arm was completed Tuesday and the work of putting up the traveler for that side was commenced on Wednesday and is now rapidly progressing. On Monday 30 additional hands were put on the bridge-work and there are now 150 employed on both sides of the river. On Wednesday a gang of painters commenced painting the bridge a slate color. The bridge approach work has made rapid progress. On the American side everything is ready for the iron girders and trestle which is to connect the Central Railroad with the cantilever bridge. On the Canada side the street abutments are nearly completed, and the stone foundations for the iron piers of the iron trestle are well under way. All the grading for the Welland Cut-off is completed except the deep cut near the Convent on which only a limited force can be employed. The Canada Southern tracks between Clifton and Niagara Falls are now on the new grade. The work on the Canada side is now being pushed with great vigor, and with the rate of progress made the past week three more weeks will see it finished."

Mississippi, Terre aux Boeufs & Lake.—The grading on this road is now substantially finished and the track is laid from the terminus at the Elysian Fields, in New Orleans eastward along the left bank of the Mississippi to English Bend, 18½ miles. From that point the road will leave the river and run east 11½ miles to Shell Beach on Lake Borgne, which will be the terminus. The line along the river reaches a number of large sugar plantations. The road follows very nearly the line of the old Mexican Gulf road, which was built 45 years ago, but had its track taken up during the war.

Mobile & Ohio.—This company has made a general reduction in its rates on cotton from local points to Mobile. The reduction varies from 25 to 75 cents a bale. No reduction has been made from junction and competitive points.

Nantucket.—During the past season this road was extended one mile from the old terminus at Surfside, Mass., on the island of Nantucket, making it 5 miles long from the town of Nantucket. Arrangements have been made to build in the spring an extension of 7 miles, from the present terminus to Siasconset, on the south side of the island.

Nashville, Chattanooga & St. Louis.—This company's statement for September and the three months of its fiscal year from July 1 to Sept. 30 gives the following figures:

	September—1883.	1882.	Three months—1883.	1882.
Earnings	\$197,798	\$190,193	\$609,925	\$548,478
Expenses	105,942	109,586	310,019	325,385
Net earnings	\$91,856	\$80,610	\$299,906	\$241,093
Interest and taxes			165,691	162,054
Surplus			\$134,215	\$79,039

For the three months there was an increase of \$43,477, or 7.7 per cent., in gross earnings; a decrease of \$15,363, or 4.7 per cent., in expenses; an increase of \$58,813, or 24.4 per cent., in net earnings; an increase of \$3,637 in interest and taxes, and an increase in the surplus of \$55,176, or 69.8 per cent.

The gauge of the Tuscaloosa Branch is to be changed from 3 ft. to 5 ft., that of the main line. It has not yet been decided when the change will be made. The branch is now 40 miles long, and is doing a considerable business in iron ore.

New Brighton & New Castle.—The completion of this road, now nearly finished, has been delayed by a fight

with the Pittsburgh, Youngstown & Chicago Co. over the right of way near Rock Point, Pa. Violence was threatened on both sides, and the courts have been appealed to. The Pittsburgh, Youngstown & Chicago claims priority of location, while the New Brighton & New Castle claims priority of possession, no work having yet been done on the other road.

New Orleans & Northeastern.—The first through freight train over this road left Meridian for New Orleans Oct. 31. Regular passenger trains will probably begin to run over the road about Nov. 18.

New York, Lake Erie & Western.—This company makes the following statement for July and the ten months of its fiscal year, from Oct. 1 to July 31:

	July—1883.	1882.	Ten months—1883.	1882.
Earnings	\$2,111,456	\$1,850,200	\$17,608,157	\$16,252,404
Expenses	1,494,683	1,122,980	12,387,970	10,924,092
Net earnings	\$616,773	\$727,271	\$5,220,187	\$5,328,324
Per cent. of exps.	70.8	60.7	70.4	67.2

For July there was an increase of \$261,196, or 14.1 per cent., in gross earnings, and a decrease in net earnings of \$110,498, or 15.2 per cent. For the ten months there was an increase of \$1,355,741, or 8.3 per cent., in gross earnings, with an increase of \$1,463,878, or 13.4 per cent., in expenses, the result being a decrease in net earnings of \$108,137, or 2.0 per cent.

As heretofore noted, the gross earnings, as reported this year, include from May 1, the date of the lease, the 68 per cent. of the New York, Pennsylvania & Ohio earnings, which goes to the lessee, the expenses including all those of the leased line. The 32 per cent. of the New York, Pennsylvania & Ohio gross earnings, which goes to the lessor company as rental, does not appear in the statement at all.

New York, West Shore & Buffalo.—On the 147 miles between Syracuse, N. Y., and Buffalo one track is now laid for 133 miles, leaving two gaps, one of 4 miles between Albany and Syracuse, and one of 10 miles between Clyde and the Cayuga County line. The principal work remaining to be done is the bridge over the Seneca River. It is expected that one track will be completed between Syracuse and Buffalo by the end of November, and that a large part of the second track will be down by that time also.

Norfolk & Western.—This company's statement gives the following figures for September and the nine months ending Sept. 30:

	September—1883.	1882.	Nine months—1883.	1882.
Earnings	\$286,557	\$232,774	\$1,976,891	\$1,671,429
Expenses	127,758	112,615	1,080,351	916,438
Net earnings	\$158,799	\$120,169	\$896,540	\$754,991
Per cent. of exps.	44.6	48.4	54.6	56.0

For the nine months there was an increase of \$305,462, or 18.3 per cent., in gross earnings, with an increase of \$183,913, or 14.1 per cent., in expenses, the result being a gain in net earnings of \$171,549, or 23.7 per cent.

The New River Division (75 miles) was opened for traffic May 21 last, making the average mileage worked for the nine months 464 miles, against 428 miles last year.

Northeastern, of Georgia.—A settlement has been made of the claims in litigation against this road, and the Receiver recently appointed has been discharged by the Court. It is said that the settlement includes an agreement for the resumption of work on the extension from Tallulah Falls through Rabun Gap into East Tennessee.

Northern Central.—This company's statement for September and the nine months ending Sept. 30 is as follows:

	September—1883.	1882.	Nine months—1883.	1882.
Earnings	\$145,727	\$557,558	\$4,552,137	\$4,255,773
Working expenses	279,629	298,181	2,495,028	2,439,658
Extraordinary exps.	15,341	23,042	271,958	220,810
Total exps.	\$294,970	\$321,183	\$2,766,986	\$2,660,477
Net earnings	\$250,757	\$236,375	\$1,785,151	\$1,595,296

For the nine months there was an increase of \$296,864, or 6.9 per cent., in gross earnings; an increase of \$55,370, or 2.3 per cent., in working expenses, and of \$51,130, or 23.1 per cent., in extraordinary expenses, making an increase of \$106,509, or 4.0 per cent., in total expenses; the result being a gain in net earnings of \$189,855, or 11.9 per cent.

The monthly earnings, as given in the company's comparative statements this year are less in amount than the corresponding statements published last year. This is accounted for by the fact that the statements as published last year included the earnings of the Union Railroad in Baltimore, while in the comparative statements, as now published, the Union Railroad receipts and expenses are not included for either year.

Northern Pacific.—The Superintendent of the Railway Mail Service has issued orders that all mail for points in Oregon, Washington and Alaska must hereafter be sent to St. Paul for transmission over this road. This order, it is said, will largely increase the mails over the road and the pay for them.

Ohio Central.—The committee representing the River Division bondholders has brought a new suit in the United Circuit Court for the Ohio District, and also in West Virginia. The suit is to foreclose the mortgage, and the plaintiffs ask the Court to appoint a new receiver to represent their interests, and to discharge the present Receiver. The committee is determined to prosecute the suit vigorously. The question of the appointment of a new receiver will be heard Nov. 13 next.

Palestine, Sabine & New Orleans.—This company has been organized to build a railroad from Houston, Tex., through Athens and Palestine to Vermillionville, La. Work is to be begun at once on the section from Palestine to Athens, 18 miles.

Peoples' Railway of America.—In a letter signed by J. D. Harrington, Secretary, and W. Griswold, Deputy President, of this company, we are told that we have been misinformed concerning the movements of this company's agents in Chicago, and a "local board" was organized there Oct. 12 with 4,857 subscribers to stock, representing \$242,850, obtained in less than a month. We are also told that up to the middle of this month nearly \$4,000,000 of stock had been subscribed.

There are many very foolish people in the country, and some of them have money, and doubtless a few of these may be induced to subscribe to the stock of the "Peoples' Railway of America," where, no doubt, the investment will be "permanent" enough to satisfy any of them.

Pennsylvania.—The company's statement shows for the month of September, as compared with the same month last year, on all the lines east of Pittsburgh and Erie:

An increase in gross earnings of	\$417,396
An increase in expenses of	29,457
Net increase	\$387,939

For the nine months ending Sept. 30, as compared with the corresponding period of last year, the same lines show:

An increase in gross earnings of \$2,005,130
An increase in expenses 1,533,084

Net increase \$472,046
Carrying out the comparisons thus made, we have the following figures:

	1883.	1882.	Inc. or Dec.	P. c.
Earnings.....	\$4,634,898	\$4,417,602	I.	217,296 4.8
Expenses.....	2,712,633	2,683,176	I.	29,457 1.1
Net earnings.....	\$1,922,265	\$1,734,426	I.	\$187,839 10.8
Nine months:				
Earnings.....	\$37,892,916	\$35,887,786	I.	\$2,005,130 5.6
Expenses.....	23,816,364	22,283,280	I.	1,533,084 6.9
Net earnings.....	\$14,076,552	\$13,604,506	I.	\$472,046 3.4

For the nine months the expenses were 62.9 per cent. of gross earnings this year, against 62.1 per cent. last year.

For the nine months of this year all lines west of Pittsburgh and Erie show a surplus of \$875,702 over all liabilities, being a decrease of \$192,070 as compared with the corresponding period of last year.

The Philadelphia Ledger of Oct. 31 says: "During this year the Engineering Department has been actively engaged in further extending the third and fourth track system on the main line, and this work is steadily progressing, in addition to other important improvements that are being made; and at numerous places between Philadelphia and Pittsburgh the right of way has been purchased for the third and fourth tracks, and for sidings, freight sheds, tool houses and station houses. East of Fifty-second street, 3 miles of additional track have been laid to accommodate the traffic of the new Schuylkill Valley Railroad over a portion of the main line; the fourth track has been extended from Villa Nova to Devon. At Frazer, where the Phoenixville & West Chester Railroad connects with the main line, 1½ miles of additional sidings have been constructed. At Coatsville the line of the road has been straightened and shortened, and a new grade is in progress at Gap. At Shock's Mills, near Mount Joy, sidings are being laid. The interlocking switch apparatus has been introduced at Powelton avenue; and at Dillerville Junction, the intersection of the Harrisburg & Lancaster Railroad with the Columbia Railroad, it is also being arranged. New passenger stations have been built at Wayne, Devon and Paoli. The ground has been purchased, and foremen's houses will be erected at Mill Creek, Villa Nova, Woodbine and Malvern. Near Harrisburg some important additions have been made to the facilities for handling freight; purchases of land have been made, freight yards are being arranged, and additional tracks are to be constructed. At Harrisburg a new passenger depot is to be built west of the location of the present depot; it will be a substantial brick structure, fitted up with the most modern conveniences for the accommodation of the traveling public. This will give additional track room on the present location of the old depot, where trains can be made up with greater facility. The importance of these improvements at this point may readily be seen when it is noted that here is interchanged with the main line the traffic of the Northern Central Railway and the Philadelphia & Erie and Cumberland Valley railroads, by which latter line connection is made with the Shenandoah Valley Railroad, over which considerable new business is now being moved South, in pursuance of an arrangement recently effected between the Pennsylvania Railroad and that company. On the middle division (between Harrisburg and Altoona) the third and fourth track system is also being extended; from Birmingham the third and fourth tracks have been extended 1½ miles. The grading for the extension of third track is being done for about a mile west of Newport, 1,800 feet near Thompsonstown, and about 1½ miles (east and west) at Vineyard. On the main line near East Tyrone the grade of the road is being raised. At Duncansville a passenger and freight station is being built. About 3½ miles of second track have been constructed from Tyrone to Vail, connecting with the Bald Eagle Valley and Tyrone & Clearfield railroads, and in the East Tyrone yards, where the coal from the Clearfield region is weighed and arranged for shipment, additional sidings are being constructed to accommodate the increased traffic, and on the north side yard about one mile of siding has also been laid. Near Bell's Mills a track tank has been built. The Altoona yards are being extended and two additional sidings will be constructed, making 10 sidings at this place. The company's shops at Altoona are very active at present, the car shops in filling an order for 500 refrigerator cars, at the rate of 16 cars per day, in addition to the cars of other classes which are being built, and 500 gondola cars have recently been ordered. During the year so far 100 new locomotives of the various classes have been built and about 250 repaired. Thirty-five locomotives were constructed at the Grant Locomotive Works for the company, and 15 at the Pittsburgh Locomotive Works, all of which could have been built at Altoona had not immediate necessity determined otherwise. So far 147 new locomotives have been placed on the road. The heaviest locomotive ever built at the shops in Altoona is passenger engine No. 1056, class P. Its weight is 100,643 pounds, and it is designed for the New Jersey Division. An order has been given for the construction of six class M shifting engines. They are of the pattern of those already in use in the yard, having the sloping tender. An order for a number of locomotives has also been placed with the Baldwin Works. The foundries are busily engaged in making wheels, switches, frogs, water cranes and other work. A system of cleaning files and rasps by a sand blast has recently been introduced, which is both novel and very economical. An 80 horse-power dynamo engine has been placed in the new shop, and 96 lamps of 2,000 candle-power each put up. A new erecting shop is soon to be built, in which will also be made flues and pipes, both iron and brass. Altoona will probably have at an early date a public hospital; the state has appropriated \$15,000 for the purpose, provided the county authorities will furnish a like amount. At Kittanning a dam is being built by the city to furnish an increased supply of water to Altoona, which is badly needed. This dam is in the ravine of Horseshoe Curve, and will be an improvement to the effect of that wonderful piece of scenery. The tunnel on the old Portage Railroad, which has been in disuse for some years, has been cleaned out, and the tracks have been relaid and connected at both ends with the main line of the Pennsylvania Railroad, thus giving an additional tunnel to avoid detention in crossing the summit of the Alleghenies and relieving the main line tunnel. From Brimonts to East Liberty the third and fourth tracks have been finished, making in all four tracks from Brimonts to Pittsburgh, over 11½ miles. On the Pittsburgh Division the grading for third track has been done west one-half mile from Sonman; from Mineral Point three-fourths of a mile, from Sang Hollow over one-half mile, and also one-half mile west from both Nineveh and Rodebaugh.

"At Pittsburgh a number of improvements are being made to accommodate the growing traffic, both passenger and freight; and for the extension of facilities at the Union Depot. The freight and car yards at Pittsburgh are also being enlarged. A new and capacious freight depot on the site of old Fort Duquesne, at Pittsburgh, is being built. It

will be of brick, 100 ft. by 335 ft., with offices on the second floor, and two tracks will run the entire length, in the center. An additional line of telegraph wire has been completed from Philadelphia to Pittsburgh."

The consolidation of the Pemberton & Sea Shore and the Philadelphia & Long Branch companies in New Jersey has been finally completed. The consolidated Philadelphia & Long Branch Co., thus formed, owns the line from Pemberton Junction, N. J., to Bayhead, 45½ miles; it is controlled and wholly owned by the Pennsylvania Railroad Co.

Philadelphia & Atlantic City.—The formal transfer of this road to the Philadelphia & Reading Co., as purchaser at the foreclosure sale, was made Oct. 31. Arrangements will be made at once to change the road from 3 ft. 6 in. to standard gauge.

Philadelphia & Reading.—This company's statement gives the following figures for September and the ten months of the fiscal year from Dec. 1 to Sept. 30, the earnings and expenses of the Railroad Co., including those of the leased Central Railroad of New Jersey from the date of the lease, June 1, 1883:

	September— 1883.	1882.	Ten months— 1883.	1882.
Railroad Co.:				
Earnings.....	\$3,333,217	\$2,019,017	\$22,611,578	\$17,403,854
Expenses.....	1,584,535	1,018,334	12,038,538	9,772,904
Net earnings.....	\$1,748,682	\$1,000,683	\$10,573,040	\$7,630,950
Coal & Iron Co.:				
Earnings.....	\$1,861,194	\$1,479,315	\$13,408,682	\$12,160,036
Expenses.....	1,706,722	1,311,167	13,030,417	11,410,934
Net earnings.....	\$94,472	\$88,148	\$378,265	\$749,102
Both companies:				
Earnings.....	\$5,194,411	\$3,488,332	\$36,020,260	\$29,563,890
Expenses.....	3,351,257	2,389,501	25,068,955	21,183,838
Net earnings.....	\$1,843,154	\$1,088,831	\$10,951,305	\$8,380,052

For the ten months the Railroad Co. shows an increase of \$5,207,724, or 29.9 per cent., in gross earnings; an increase of \$2,265,634, or 23.2 per cent., in expenses, with a resulting gain in net earnings of \$2,942,090, or 38.6 per cent. The net earnings of the New Jersey Central for the four months since the lease have been \$2,361,736, so that the net gain on the Reading lines proper has been \$680,354, or 8.9 per cent.

The Coal & Iron Co. shows for the nine months an increase of \$1,248,646, or 10.3 per cent., in gross receipts, with an increase of \$1,619,483, or 14.2 per cent., in expenses, the result being a loss in net earnings of \$370,837, or 49.5 per cent. The net earnings of this company were only 2.82 per cent. of the gross receipts.

The statement thus shows for both companies together for the nine months an increase of \$6,456,370, or 21.8 per cent., in gross earnings; an increase of \$3,885,117, or 18.3 per cent., in expenses, and a resulting gain of \$2,571,253, or 30.7 per cent., in net earnings. If the net earnings of the Central lines be deducted, the net increase of the two Reading companies for the nine months would be \$309,517, or 3.7 per cent. only.

In these statements no charge for interest or rentals is included in expenses, the net earnings as given being the amount from which those charges are to be paid.

The earnings of the Reading & Central lines for September are given separately as follows:

	Reading.	Central.	Total.
Gross earnings.....	\$2,062,925	\$1,170,292	\$3,233,217
Expenses.....	1,034,982	549,553	1,584,535
Net earnings.....	\$1,127,943	\$620,739	1,748,682
Central rental for month.....		528,652	528,652
Surplus.....		\$92,087	\$1,220,030

The Central surplus over rental for the four months from June 1, the date of the lease, to Sept. 30 was \$437,932. The rental for September includes the monthly proportion of dividends on the stock for the first time, as those dividends only began from Sept. 1.

The sources of the income of the Railroad Co. in September were as follows:

	Earnings.	Expenses.	Net earn.
Railroad traffic.....	\$3,177,138	\$1,495,781	\$1,681,357
Canal traffic.....	116,570	50,367	66,203
Steam colliers.....	33,103	32,046	1,057
Richmond coal barges.....	6,406	6,341	65
Total.....	\$3,333,217	\$1,584,535	\$1,748,682

The net gain this year was entirely from the railroad traffic, the net receipts from the canal and from the colliers and barges showing a considerable decrease.

The traffic reported is as follows:

	September— 1883.	1882.	Ten months— 1883.	1882.
Passengers carried.....	2,125,970	1,209,944	12,281,522	9,574,435
Tons merchandise.....	802,589	632,884	6,704,291	6,220,361
Tons coal.....	1,397,591	764,932	8,729,225	6,679,095
Ton coal on colliers.....	42,018	45,645	431,017	465,273
Tons coal mined:				
By Coal & Iron Co.....	488,601	377,176	3,533,693	3,210,221
By tenants.....	131,000	144,303	1,208,093	1,219,632
Total.....	619,601	521,479	4,741,786	4,429,853

The increase in traffic comes largely from the New Jersey Central lines. The coal mined from the Coal & Iron Co.'s lands formed about 54 per cent. of all the coal carried.

Pittsburgh & Western.—It is again reported that an agreement has been made for the lease of this road to the New York, Lake Erie & Western Co. It is said that only a few details remain to be arranged.

Pullman's Palace Car Co.—Notice is given that stockholders of record on Nov. 1 will have the right to subscribe at par for new stock to the amount of one-tenth of their present holdings until Dec. 1 next. Payment for such stock must be made by Dec. 1, when certificates will be issued for the stock, excluding fractional shares. Forms of subscription may be obtained from the Secretary of the company in Chicago; the New England Trust Co. in Boston, or the Farmers' Loan & Trust Co. in New York.

St. Louis Eastern.—This company has been organized to build a railroad from East Carondelet, Ill., to a point near Centerville, where connection will be made with the Belt line around East St. Louis. The object of the road is to form a connection from East Carondelet with all the roads running into St. Louis from the East.

St. Louis & San Francisco.—The St. Louis Republican says: "The finishing touches are being given to the extension of the 'Frisco from Pacific into the city. The track is being surfaced and ballasted, the telegraph line put up and switches being put in. About 2,000 men are engaged in the work and all will soon be in readiness for the opening of traffic over the new extension, which is to take place Jan. 1. The distance by the new route is 3 miles shorter than by the Missouri Pacific, which follows around the bluffs in the Meramec bottom, while the 'Frisco cuts across them. All

possible accommodations will be given suburban travel on the new line, but nothing definite is known yet as to the number of trains and rates of fare. The location of way stations in the city is not yet determined, but will be in a few days.

"The site of the new freight depot, between Seventh and Ninth and Cerre and Gratiot streets, is being cleared, and work will be begun in a few days. The building will be of pressed brick with cut stone trimmings, and will cost in the neighborhood of \$100,000. It will occupy the south half of the two blocks bounded by Seventh, Ninth, Gratiot and Cerre streets. The portion fronting on Seventh street will be two stories in height with a mansard roof, while the rear portion will be one story in height and built on the warehouse plan.

"The new round-house and locomotive works on Grand avenue, west of the crossing, on which work was begun about ten days ago, are being pushed rapidly forward and will be in readiness on Jan. 1. The cost when completed will be between \$30,000 and \$40,000.

"After the opening of the St. Louis & Pacific extension the next work will probably be on the Arkansas Branch, which will be pushed on to Paris, Tex., where connection will be made with the Houston & Texas Central, and the Gulf, Colorado & Santa Fe. There will be no heavy grades to overcome, as the country traversed is principally a level prairie, on which the elevations and depressions are gradual. Owing to this the cost of construction per mile will be but a fraction of what it was though the portion of the route over which the road has thus far been built. The track is now a short distance west of the Arkansas line in the Indian territory."

Shenandoah Valley.—This company makes the following statement for the month of September:

	1883.	1882.	Increase.	P. c.
Earnings.....	\$91,726	\$63,714	\$28,012	44.0
Expenses.....	58,046	49,254	8,792	17.8
Net earnings.....	\$33,680	\$14,460	\$19,220	132.9

For the nine months to September 30 this year the net earnings were \$131,012, against a deficit of \$5,953 for the corresponding period in 1882. This deficit was chiefly due to the transportation last year of a large amount of construction material, the cost of carrying which was charged to expenses.

South Florida.—Work is progressing steadily from Kissimmee, Fla., westward, on the extension of this road from Kissimmee to Tampa, which will be about 70 miles long. Work is also in progress on the western end, and the track is reported laid from Tampa east 6 miles.

Texas Trunk.—Tracklaying has been begun on the extension from Kaufman, Tex. The line is graded for 15 miles, and the track must be laid on that section by Nov. 15 to save the company's charter.

Toledo & Indianapolis.—The Union Iron & Steel Co., of Chicago, has made application to the United States Circuit Court at Cleveland, O., for the appointment of a receiver for this road. The company has a claim for \$170,000 for rails furnished, to secure which it holds \$401,000 in first-mortgage bonds. It is understood that other claims against the road will also be presented to the Court, their amount being about \$390,000, of which \$240,000 are secured by pledge of bonds. The road is completed from Toledo, O., to Findlay, 44 miles. An issue of \$600,000 first-mortgage bonds has been made, but none of them have been sold, all of them being hypothecated as security for floating debts.

The Toledo Commercial Telegram says of the road: "As is well known, the new road was and is a promising one, literally so. It runs through what is the making of a good territory, but it was built mostly on faith—and run on hope and charity."

Union Pacific.—This company's statement for August and the eight months ending Aug. 31 gives the following figures:

	August.	1882.	Eight months.	1882.
Earnings.....	\$2,576,446	\$2,827,904	\$18,557,211	\$18,813,183
Expenses.....	1,456,408	1,220,495	9,905,593	10,242,710
Net earnings.....	\$1,119,978	\$1,607,409	\$8,591,618	\$8,570,473
Percent of exp.....	56.5	43.2	53.7	54.4

For the eight months there was a decrease of \$255,972, or 1.4 per cent., in gross earnings, with a decrease of \$277,117, or 2.7 per cent., in expenses, the result being an increase in net earnings of \$21,145, or 0.2 per cent.

The decrease in gross earnings for August is accounted for, in great part, by the non-transportation of material for Oregon Short Line this year, which was large last year, and the increase of expenses by a large deduction from expenses in August, 1882, for old rails taken out of track.

United States Central.—This company has filed articles of incorporation to build a railroad from San Francisco by way of Crystal Springs, Nev., and Iron Springs, Utah, to Denver, Col., with branches to a junction with the Atlantic & Pacific in Arizona and to a connection with the Utah Central at Milford. This company is a consolidation of the San Francisco & Ocean Shore, the California Central and the Denver, Hot Springs & Pacific, three companies which have existed on paper for some time.

Utica & Black River.—The consolidation of the Black River & Morristown Co. with this company has been completed, the stockholders having approved and ratified the agreement. The Black River & Morristown road extends from Philadelphia, N. Y., to Morristown, 37 miles; it was built by the Utica & Black River Co., and has always been leased and worked by that company, so that the consolidation is purely formal.

Utica, Clinton & Binghamton.—It is said that the Delaware & Hudson Canal Co., which leases this road, is considering the question of extending it from Smith Valley, N. Y., to Elmira. The proposed route is through Cortland and the Otsego Valley.

Washington & Atlantic.—The line of this projected road has been located from Lewes, Del., to Bridgeville, near the state line, and surveys are in progress from that point to Kent Island, Md. Two lines have been run from Bridgeville to the Choptank River. The company's agent is now securing the right of way in Delaware.

West Jersey.—This company's statement for September and the nine months ending Sept. 30 gives the following figures:

	September— 1883.	1882.	Nine months— 1883.	1882.
Earnings.....	\$110,931	\$105,583	\$982,919	\$884,485
Expenses.....	86,657	79,990	587,111	493,785
Net earnings.....	\$24,274	\$25,593	\$395,808	\$390,700
Per cent. of exp.....	78.1	75.7	59.7	55.8

For the nine months there was an increase of \$98,434, or 11.2 per cent., in gross earnings, with an increase of \$93,326, or 18.9 per cent., in expenses, the result being an increase in net earnings of \$5,108, or 1.3 per cent.